

UNITED STATES PATENT AND TRADEMARK OFFICE

Examiner: T. Noland

Art Unit: 2856

In re:

Applicant(s): POHLMANN, R.

Serial No.: 08/916,106

Filed: May 6, 1999

**URGENT STATUS REQUEST RE:
PETITION TO WITHDRAW HOLDING OF ABANDONMENT**

June 13, 2007

Attention: Ms. Fasion-Bell
Senior Petitions Examiner

Honorable Commissioner of
Patents and Trademarks
Washington, D.C. 20231

Reference is made to the previously filed urgent status request dated January 4, 2007.

Reference is further made to subsequent telephone conferences with the petition's branch in which it was indicated that apparently the file of the subject application has become lost.

Applicant was awaiting a requirement for reconstruction of the file which has not been forthcoming.

In order to expedite prosecution applicant herewith submits a copy of the file history of the subject application and certifies that it is according to the best information and belief of the undersigned, a true and complete copy.

Now that the file has been fully reconstructed, prompt consideration of the earlier filed Petition to Revive is respectfully requested. It is noted that the Petition was filed in July of 2003 as a Petition to Withdraw the Holding of Abandonment.

Respectfully submitted,
/ Michael J. Striker /

Michael J. Striker
Attorney for Applicant
Reg. No.: 27233
103 East Neck Road
Huntington, New York 11743

Acknowledgement Receipt

The USPTO has received your submission at **12:06:02** Eastern Time on **04-JAN-2007**.

No fees have been paid for this submission. Please remember to pay any required fees on time to prevent abandonment of your application.

eFiled Application Information

EFS ID	1415628
Application Number	08916106
Confirmation Number	2571
Title	ARRANGEMENT FOR DETERMINING THE PENETRATION DEPTH ON PUTTING IN PLACE SUPPORTING ELEMENTS INTO A WATER BED
First Named Inventor	REINK POHLMANN
Customer Number or Correspondence Address	STRIKER STRIKER & STENBY 103 EAST NECK ROAD HUNTINGTON NY 11743 US
Filed By	Michael John Striker/Olga Fuchs
Attorney Docket Number	
Filing Date	21-AUG-1997
Receipt Date	04-JAN-2007
Application Type	Utility

Application Details

Submitted Files	Page Count	Document Description	File Size	Warnings
pohlmann.PDF	12	Petition for review by the Office of Petitions.	3906437 bytes	◆ PASS

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

If you need help:

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- ⌘ *Send general questions about USPTO programs to the USPTO Contact Center (UCC).*
- ⌘ *If you experience technical difficulties or problems with this application, please report them via e-mail to Electronic Business Support or call 1 800-786-9199.*

UNITED STATES PATENT AND TRADEMARK OFFICE

Examiner: T. Noland

Art Unit: 2856

In re:

Applicant(s): POHLMANN, R.

Serial No.: 08/916,106

Filed: May 6, 1999

**URGENT STATUS REQUEST RE:
PETITION TO WITHDRAW HOLDING OF ABANDONMENT**

January 4, 2007

Honorable Commissioner of
Patents and Trademarks
Washington, D.C. 20231

Applicant filed a Petition to Withdraw the Holding of Abandonment on July 30, 2003.

Since that time, applicant has filed Status Requests, the most recent in October 2006. However, no replies have been received.

A copy of the Petition filed on July 30, 2003 to withdraw the holding of abandonment is attached hereto.

Since such a considerable period of time has transpired, applicant urgently requests information as to the status of applicant's petition.

In this respect it is noted that the transaction history for the subject application does indicate that a petition was entered on July 30, 2003 and therefore timely filing of the petition did take place.

Granting of applicant's petition at this time is respectfully requested, so that further prosecution of the application may take place. Additionally, it is requested that the term of any eventual patent be extended to compensate for the long delay in determining the merits of applicant's petition.

Urgent consideration of this Status Request is respectfully requested.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'Michael J. Striker', with a long horizontal flourish extending to the right.

Michael J. Striker
Attorney for Applicant
Reg. No.: 27233
103 East Neck Road
Huntington, New York 11743

UNITED STATES PATENT AND TRADEMARK OFFICE

Examiner: T. Noland

Art Unit: 2856

In re:

Applicant: POHLMANN, R.

Serial No.: 08/916,106

Filed: May 6, 1999

PETITION TO WITHDRAW HOLDING OF ABANDONMENT

July 28, 2003

Honorable Commissioner of Patents
and Trademarks
Washington, D.C. 20231

Applicant herewith petitions to withdraw the holding of abandonment of the subject application.

Applicant originally filed a Petition to Withdraw Holding of Abandonment on June 28, 2000.

The application became abandoned because applicant allegedly did not timely file formal drawings.

However, as pointed out in the original Petition to Withdraw Holding of Abandonment, of which a copy is attached, the formal drawings were timely filed on

October 4, 1999. A copy of the receipt card for the formal drawings was attached thereto, together with another set of formal drawings. Reinstatement of the patent application was requested.

Thereafter, in the course of a status request which was filed on March 26, 2001, applicant filed a Request for Expedited Decision with respect to the Petition to Withdraw the Holding of Abandonment. Unfortunately, however, the Request for Expedited Decision bore an incorrect serial number and was apparently not matched with the file. A copy of the Request for Expedited Decision is attached hereto.

Applicant now respectfully requests that the abandonment of the subject application be withdrawn because the formal drawings were timely filed and applicant has and is submitting herewith a copy of the receipt postcard for the timely filing of the formal drawings, together with another copy of the formal drawings themselves.

Respectfully submitted,

Michael J. Striker
Attorney for Applicant
Reg. No.: 27233
103 East Neck Road
Huntington, New York 11743

UNITED STATES PATENT AND TRADEMARK OFFICE

Examiner:

Art Unit:

In re:

Applicant: POHLMANN, R.

Serial No.: ~~08/306,204~~

Filed:: 05/06/99

08/916,106

**REQUEST FOR EXPEDITED DECISION WITH
RESPECT TO PETITION TO WITHDRAW HOLDING OF ABANDONMENT**

April 26, 2001

Honorable Commissioner of Patents
and Trademarks
Washington, D.C. 20231

Applicant, on June 28, 2000, caused to be filed a Petition to Withdraw Holding of Abandonment of which a copy is attached.

No receipt card for the Petition to Withdraw Holding of Abandonment has been located.

On March 26, 2001, applicant filed a Status Request.

Previously, applicant caused a search to be made from which it was ascertained that the subject application was presently being stored in a warehouse and therefore, evidently, was not with the Petition's Branch.

It will be seen from the Petition to Withdraw the Holding of Abandonment that formal drawings were timely filed on October 4, 1999. A copy of the receipt card for the formal drawings is attached to the Petition, together with another set of formal drawings.

In view of the long delay involved, it is respectfully requested that applicant's Petition to Withdraw the Holding of Abandonment be promptly acted upon.

Respectfully submitted,

Michael J. Striker
Attorney for Applicant
Reg. No.: 27233
103 East Neck Road
Huntington, New York 11743

UNITED STATES PATENT AND TRADEMARK OFFICE

Examiner: T. Noland

Art Unit: 2856

In re:

Applicant(s): POHLMANN, R.

Serial No.: 08/306, 204

Filed: May 6, 1999

PETITION TO WITHDRAW HOLDING OF ABANDONMENT

June 28, 2000

Honorable Commissioner of Patents
and Trademarks
Washington, D.C. 20231

Applicant herewith petitions to withdraw the holding of abandonment in the subject case.

This application became abandoned because Applicant allegedly did not file formal drawings.

However, formal drawings were timely filed on October 4, 1999. A copy of the receipt card for the formal drawings is attached hereto, together with another set of formal drawings.

Revival of the subject application is now respectfully requested.

Respectfully submitted,

Michael J. Striker
Attorney for Applicant
Reg. No.: 27233
103 East Neck Road
Huntington, New York 11743

PLEASE ACKNOWLEDGE RECEIPT OF:

POHLMANN

Ser. NO.: 08/916,106

Transmittal of Formal Drawings (3 Sheets).

OCT 11 1999

TRANSMITTAL OF FORMAL DRAWINGS

Docket No.

701

In Re Application Of: POHLMANN, R.

Serial No.

09/306,204

Filing Date

05/06/99

Batch No.

Examiner

NOLAND, T.

Art Unit

2856

Invention: METHOD FOR CALCULATING A PENETRATING DEPTH WHEN PUTTING IN SUPPORTING
ELEMENTS INTO A WATER BED

Address to:

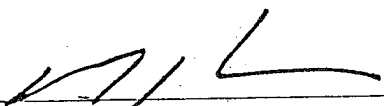
Assistant Commissioner for Patents
Washington, D.C. 20231

Transmitted herewith are:

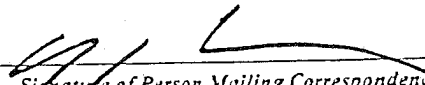
3 sheets of formal drawing(s) for this application.

Each sheet of drawing indicates the identifying indicia suggested in 37 CFR Section 1.84(c) on
the reverse side of the drawing.

Dated: OCTOBER 4, 1999


Signature

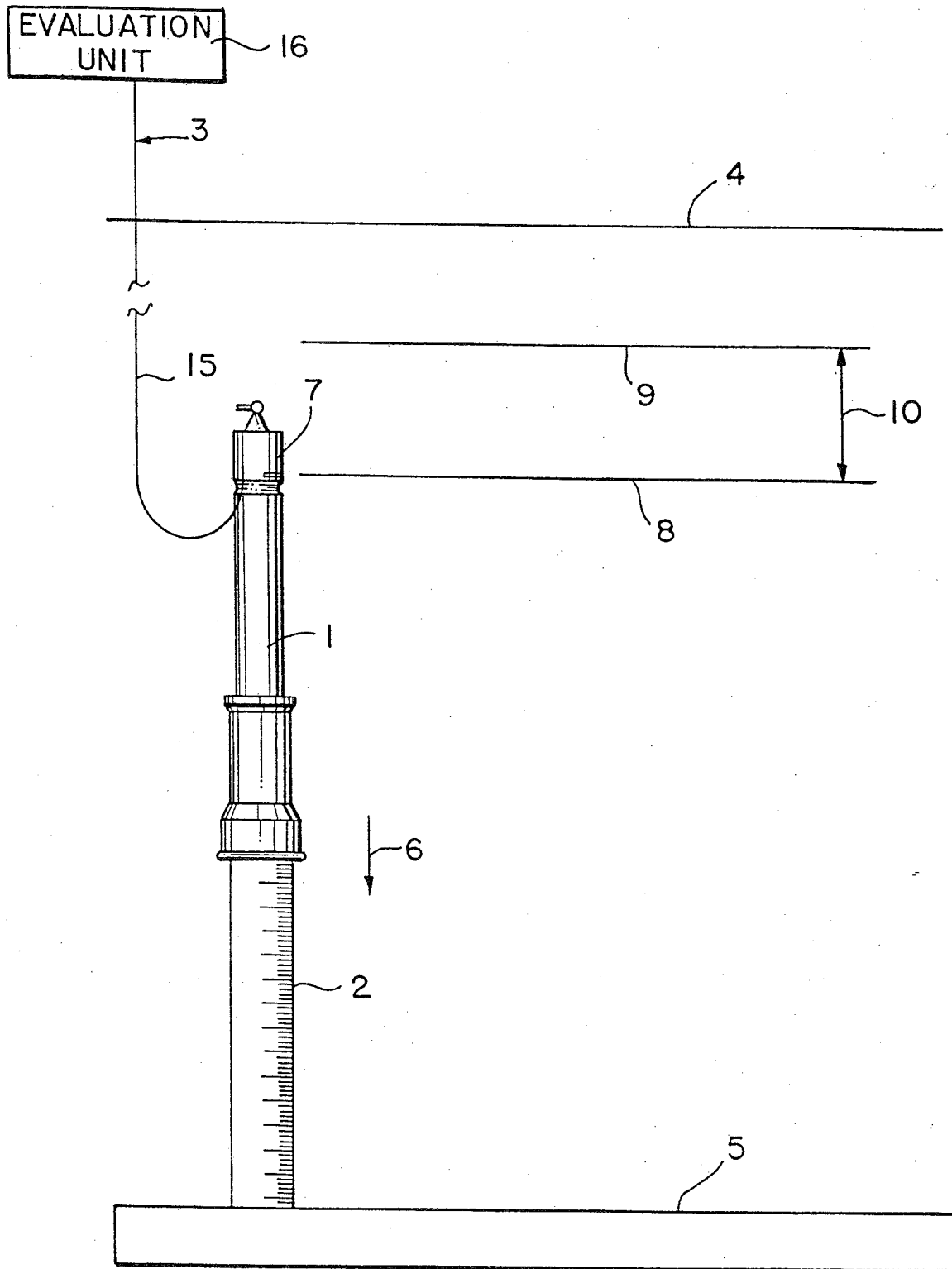
I certify that this document and attached formal drawings
are being deposited on October 4 1999 with the
U.S. Postal Service as first class mail under 37 C.F.R. 1.8
and addressed to the Assistant Commissioner for Patents,
Washington, D.C. 20231.


Signature of Person Mailing Correspondence

MICHAEL J. STRIKER

Typed or Printed Name of Person Mailing Correspondence

FIG. 1



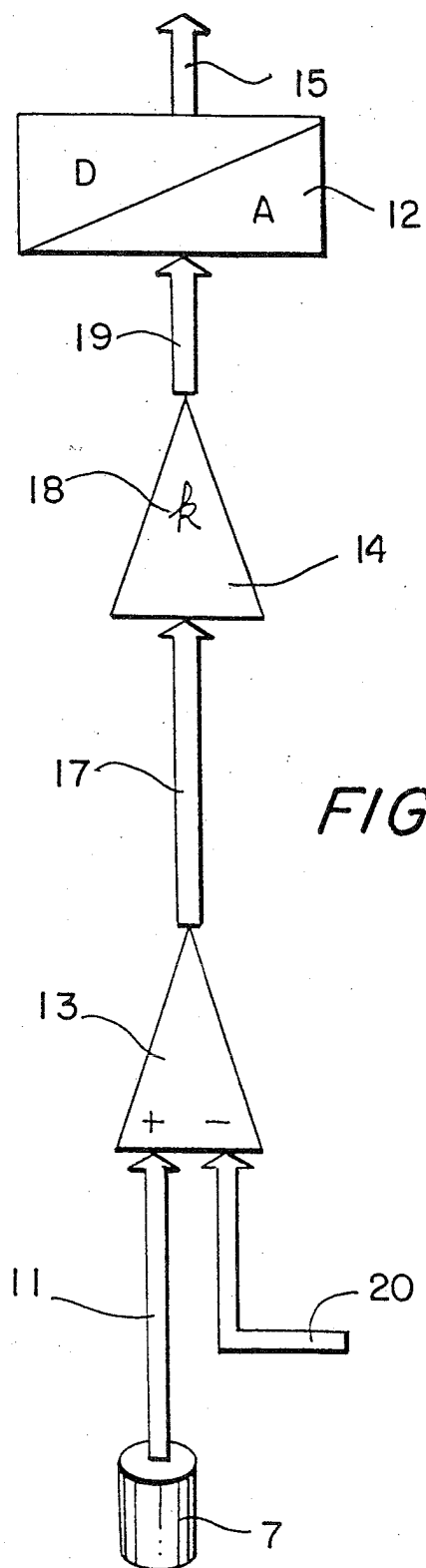


FIG. 2

FIG. 3

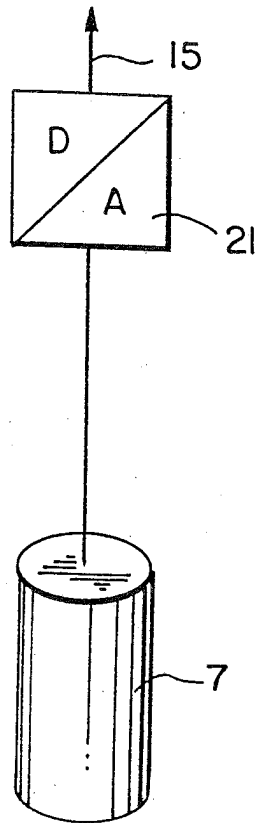


FIG. 4

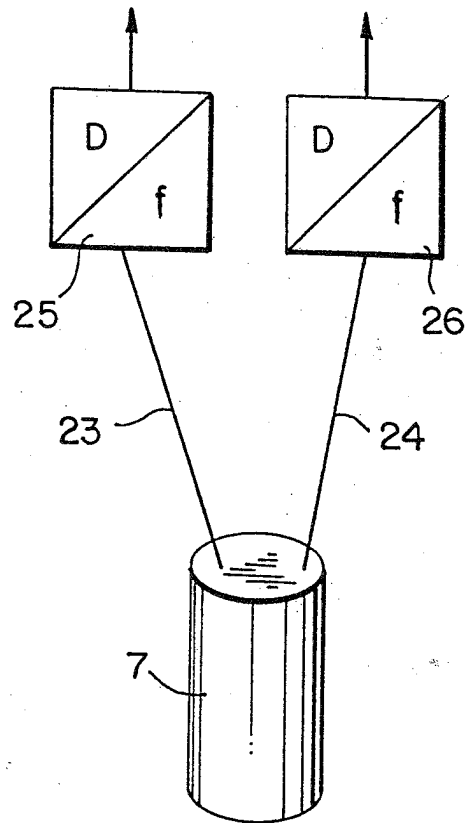
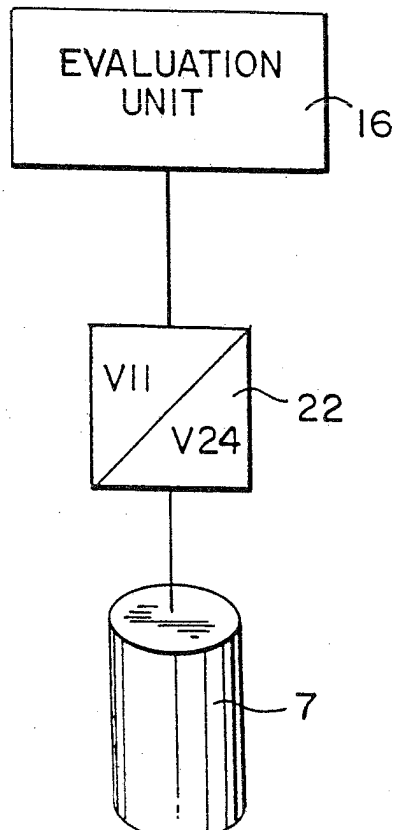


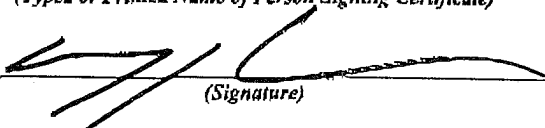
FIG. 5




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*****
*** TX REPORT ***
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TRANSMISSION OK

TX/RX NO	2151
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DESTINATION ID	US PTO
ST. TIME	10/05 15:51
TIME USE	00'42
PAGES SENT	3
RESULT	OK

CERTIFICATE OF TRANSMISSION BY FACSIMILE (37 CFR 1.8)			Docket No.
Applicant(s): POHLMANN			
Application No. 08/916,106	Filing Date 05/06/1999	Examiner NOLAND, T.	Group Art Unit 2856
Invention: ARRANGEMENT FOR DETERMINING...			
I hereby certify that this STATUS REQUEST <small>(Identify type of correspondence)</small> is being facsimile transmitted to the United States Patent and Trademark Office (Fax. No. (571) 273 8300) on 10/05/2006 <small>(Date)</small>			
MICHAEL J. STRIKER <small>(Typed or Printed Name of Person Signing Certificate)</small>  <small>(Signature)</small>			
Note: Each paper must have its own certificate of mailing.			

CERTIFICATE OF TRANSMISSION BY FACSIMILE (37 CFR 1.8)Applicant(s): **POHLMANN**

Docket No.

Application No.
08/916,106Filing Date
05/06/1999Examiner
NOLAND, T.Group Art Unit
2856Invention: **ARRANGEMENT FOR DETERMINING...**I hereby certify that this STATUS REQUEST*(Identify type of correspondence)*is being facsimile transmitted to the United States Patent and Trademark Office (Fax. No. (571) 273 8300)on 10/05/2006*(Date)*MICHAEL J. STRIKER*(Typed or Printed Name of Person Signing Certificate)*
*(Signature)***Note: Each paper must have its own certificate of mailing.**

UNITED STATES PATENT AND TRADEMARK OFFICE

Examiner: T. Noland

Art Unit: 2856

In re:

Applicant(s): POHLMANN, R.

Serial No.: 08/916,106

Filed: May 6, 1999

STATUS REQUEST

October 2, 2006

Honorable Commissioner of
Patents and Trademarks
Washington, D.C. 20231

Applicant requests being advised as to the status of the subject application.

It is noted that applicant filed a Petition to Revive which was entered onto the docket of the subject application on July 30, 2003.

During a personal investigation of June of 2004, it was ascertained that the petition is part of the file and that there is an entry on PALM for the petition.

It is further understood that the file was sent to Clayton Laball, the SPRE in 2800.

Apparently Examiner Laball did agree to review the July 2003 petition and take appropriate action.

However, no action has apparently been taken.

Accordingly, inquiry is urgently made as to the status of applicant's Petition to Revive which has now been filed some three years ago.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'Michael J. Striker', with a long horizontal flourish extending to the right.

Michael J. Striker
Attorney for Applicant
Reg. No.: 27233
103 East Neck Road
Huntington, New York 11743

UNITED STATES PATENT AND TRADEMARK OFFICE

Examiner: T. Noland

Art Unit: 2856

In re:

Applicant: POHLMANN, R.

Serial No.: 08/916,106

Filed: May 6, 1999

PETITION TO WITHDRAW HOLDING OF ABANDONMENT

July 28, 2003

Honorable Commissioner of Patents
and Trademarks
Washington, D.C. 20231

Applicant herewith petitions to withdraw the holding of abandonment of the subject application.

Applicant originally filed a Petition to Withdraw Holding of Abandonment on June 28, 2000.

The application became abandoned because applicant allegedly did not timely file formal drawings.

However, as pointed out in the original Petition to Withdraw Holding of Abandonment, of which a copy is attached, the formal drawings were timely filed on

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Thereafter, in the course of a status request which was filed on March 26, 2001, applicant filed a Request for Expedited Decision with respect to the Petition to Withdraw the Holding of Abandonment. Unfortunately, however, the Request for Expedited Decision bore an incorrect serial number and was apparently not matched with the file. A copy of the Request for Expedited Decision is attached hereto.

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Michael J. Striker
Attorney for Applicant
Reg. No.: 27233
103 East Neck Road
Huntington, New York 11743

UNITED STATES PATENT AND TRADEMARK OFFICE

Examiner: T. Noland

Art Unit: 2856

In re:

Applicant: POHLMANN, R.

Serial No.: 08/916,106

Filed: May 6, 1999

PETITION TO WITHDRAW HOLDING OF ABANDONMENT

July 28, 2003

Honorable Commissioner of Patents
and Trademarks
Washington, D.C. 20231

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Respectfully submitted,

Michael J. Striker
Attorney for Applicant
Reg. No.: 27233
103 East Neck Road
Huntington, New York 11743

UNITED STATES PATENT AND TRADEMARK OFFICE

Examiner:

Art Unit:

In re:

Applicant: POHLMANN, R.

Serial No.: ~~08/306,204~~

Filed:: 05/06/99

08/916,106

**REQUEST FOR EXPEDITED DECISION WITH
RESPECT TO PETITION TO WITHDRAW HOLDING OF ABANDONMENT**

April 26, 2001

Honorable Commissioner of Patents
and Trademarks
Washington, D.C. 20231

Applicant, on June 28, 2000, caused to be filed a Petition to Withdraw Holding of Abandonment of which a copy is attached.

No receipt card for the Petition to Withdraw Holding of Abandonment has been located.

On March 26, 2001, applicant filed a Status Request.

Previously, applicant caused a search to be made from which it was ascertained that the subject application was presently being stored in a warehouse and therefore, evidently, was not with the Petitioner's Branch.

It will be seen from the Petition to Withdraw the Holding of Abandonment that formal drawings were timely filed on October 4, 1999. A copy of the receipt card for the formal drawings is attached to the Petition, together with another set of formal drawings.

In view of the long delay involved, it is respectfully requested that applicant's Petition to Withdraw the Holding of Abandonment be promptly acted upon.

Respectfully submitted,

Michael J. Striker
Attorney for Applicant
Reg. No.: 27233
103 East Neck Road
Huntington, New York 11743

UNITED STATES PATENT AND TRADEMARK OFFICE

Examiner: T. Noland

Art Unit: 2856

In re:

Applicant(s): POHLMANN, R.

Serial No.: 08/306, 204

Filed: May 6, 1999

PETITION TO WITHDRAW HOLDING OF ABANDONMENT

June 28, 2000

Honorable Commissioner of Patents
and Trademarks
Washington, D.C. 20231

Applicant herewith petitions to withdraw the holding of abandonment in the subject case.

This application became abandoned because Applicant allegedly did not file formal drawings.

However, formal drawings were timely filed on October 4, 1999. A copy of the receipt card for the formal drawings is attached hereto, together with another set of formal drawings.

Revival of the subject application is now respectfully requested.

Respectfully submitted,

Michael J. Striker
Attorney for Applicant
Reg. No.: 27233
103 East Neck Road
Huntington, New York 11743

Doc. # 777

PLEASE TURN PAGE RECH TOP:

PCHEMAD

Ser. NO.: 02/916,106

Transmittal of Formal Drawings (3 Sheets).

NO. 4 1999

TRANSMITTAL OF FORMAL DRAWINGS

Docket No.
701

Re Application Of: POHLMANN, R.

Serial No.	Filing Date	Batch No.	Examiner	Art Unit
09/306,204	05/06/99		NOLAND, T.	2856

Invention: METHOD FOR CALCULATING A PENETRATING DEPTH WHEN PUTTING IN SUPPORTING ELEMENTS INTO A WATER BED

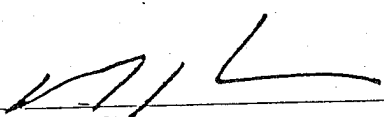
Address to:
Assistant Commissioner for Patents
Washington, D.C. 20231

Transmitted herewith are:


3 sheets of formal drawing(s) for this application.

Each sheet of drawing indicates the identifying indicia suggested in 37 CFR Section 1.84(c) on the reverse side of the drawing.

Dated: OCTOBER 4, 1999


Signature

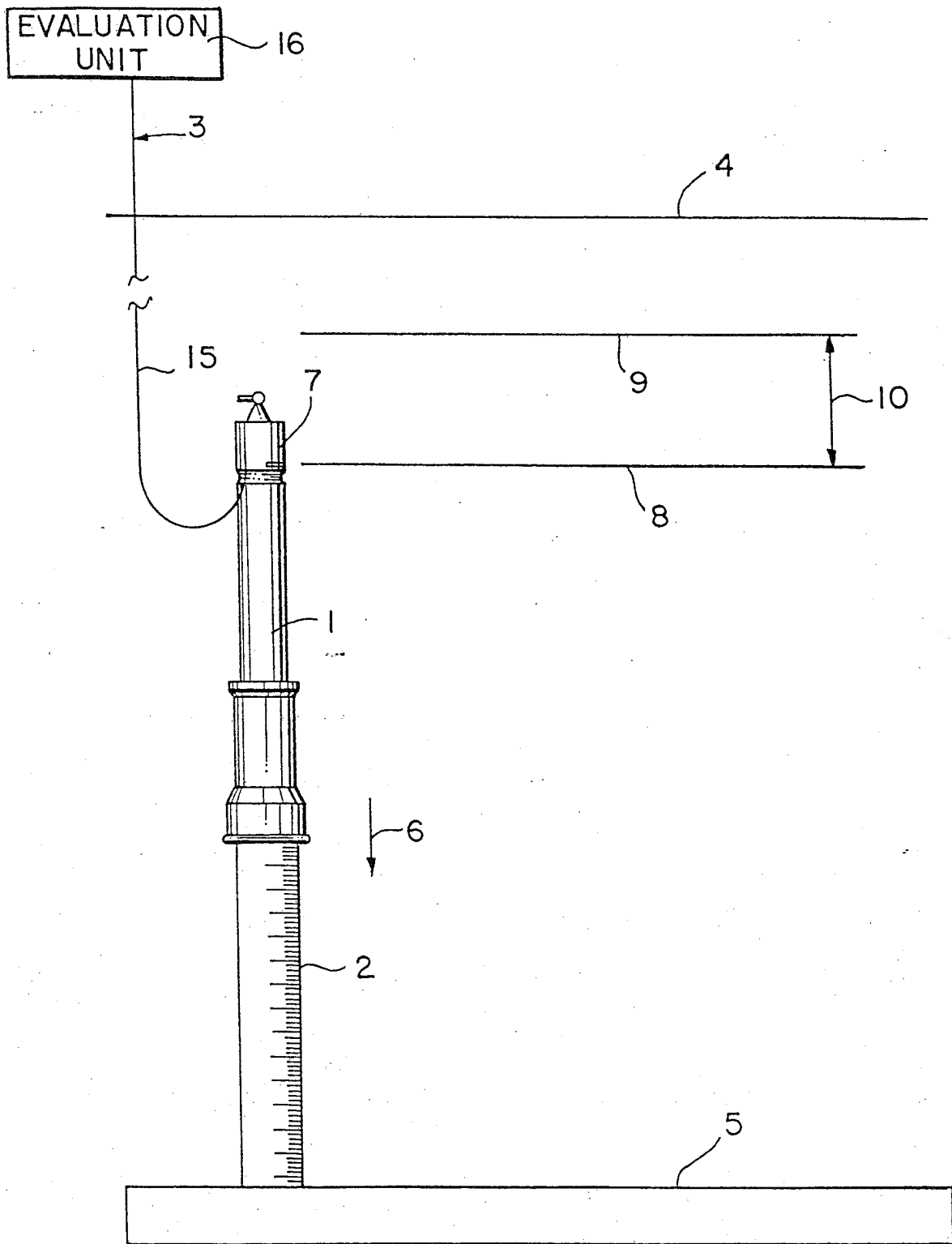
I certify that this document and attached formal drawings are being deposited on October 4 1999 with the U.S. Postal Service as first class mail under 37 C.F.R. 1.8 and addressed to the Assistant Commissioner for Patents, Washington, D.C. 20231.


Signature of Person Mailing Correspondence

MICHAEL J. STRIKER

Typed or Printed Name of Person Mailing Correspondence

FIG. 1



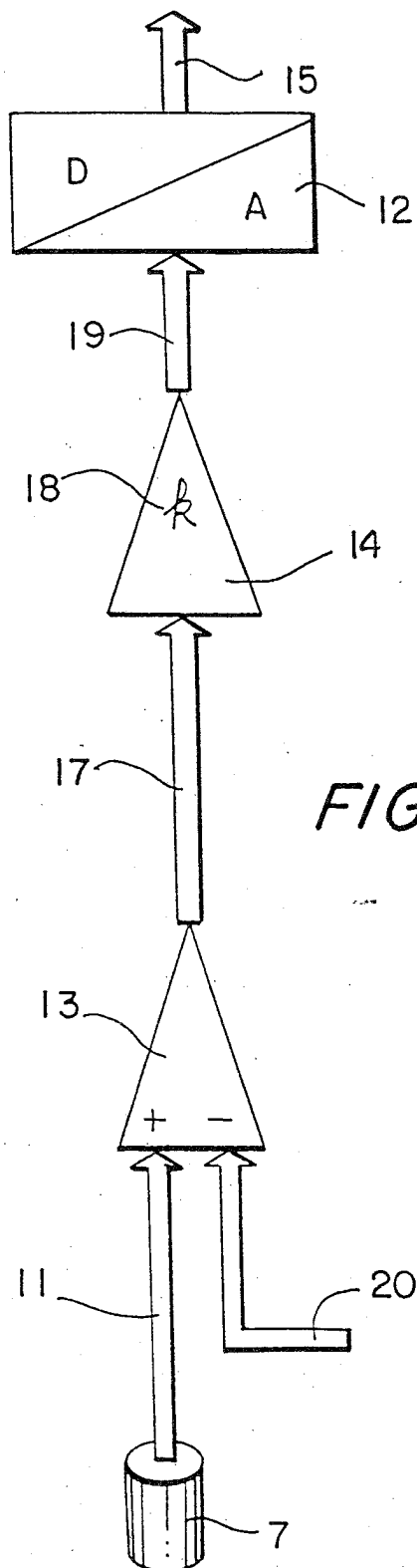


FIG. 2

FIG. 3

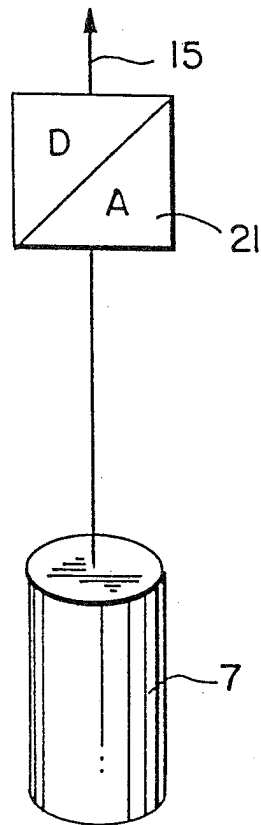


FIG. 4

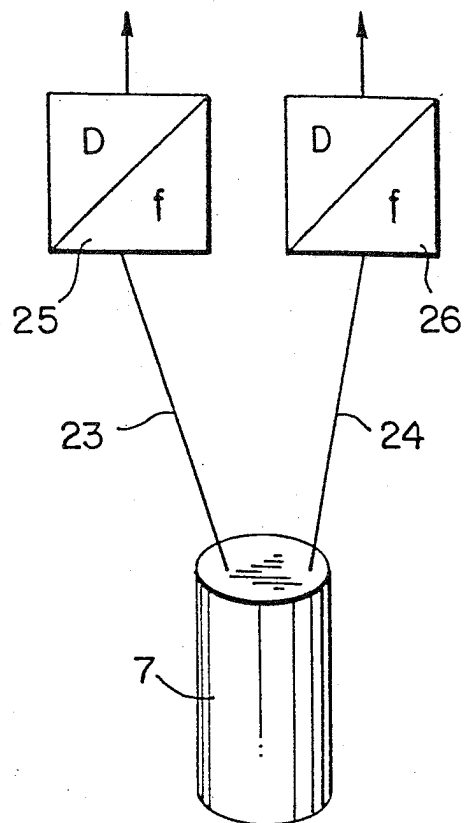
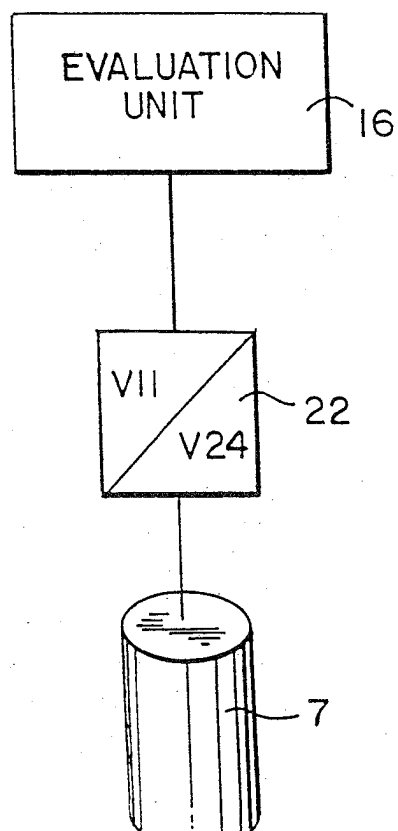


FIG. 5



UNITED STATES PATENT AND TRADEMARK OFFICE

Examiner:

Art Unit:

Attorney's Doc. #

In re:

Applicant : POHLMANN, R.
Serial No. : 08/916,106
Filed : 08/21/1997

STATUS REQUEST

October 21, 2005

Honorable Commissioner
of Patents and Trademarks
Alexandria, VA 22313

Sir:

The undersigned would appreciate being informed as to the current status
of the subject application.

Respectfully submitted,

Michael J. Striker
Attorney for Applicant
Reg. No. 27233
103 East Neck Road
Huntington, NY 11743
Phone: (631) 549-4700
Fax: (631) 549-0404

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Applicant: POHLMANN, R.

)Examiner:
)
)

Filed: 08/21/1997

)Art Unit:
)
)
)

Serial No.: 08/916,106

For:

POWER TO INSPECT AND MAKE COPIES

Commissioner of Patents
and Trademarks
Washington, D.C. 20231

Dear Sir:

Please permit any of the following individuals to inspect and make,
or have made, copies of the above identified U.S. Patent Application or any part
thereof:

Pam Carroll
Tim Brown
Lorraine Martorana

Respectfully submitted,


Michael J. Striker
Registration No. 27233

Date

May 14, 2004

UNITED STATES PATENT AND TRADEMARK OFFICE

Examiner:

Art Unit:

Attorney's Doc. #

In re:

Applicant : POHLMANN
Serial No. : 08/916,106
Filed : 08/21/1997

STATUS REQUEST

May 12, 2004

Honorable Commissioner
of Patents and Trademarks
Washington, DC 20231

Sir:

The undersigned would appreciate being informed as to the current status
of the subject application.

Respectfully submitted,

Michael J. Striker
Attorney for Applicant
Reg. No. 27233
103 East Neck Road
Huntington, NY 11743
Tel: (631) 549 4700
Fax: (631) 549 0404

UNITED STATES PATENT AND TRADEMARK OFFICE

Examiner: T. Noland

Art Unit: 2856

In re:

Applicant(s): POHLMANN, R.

Serial No.: 08/~~306~~, 204 *916, 106*

Filed: May 6, 1999

PETITION TO REVIVE

October 8, 2001

Honorable Commissioner of Patents
and Trademarks
Washington, D.C. 20231

Applicant herewith petitions to revive the subject application. Applicant herewith states that the abandonment of the subject application was unintentional.

Applicant further states that the entire delay from the due date for reply to the date of filing of a grantable petition was unintentional.

It is requested that the petition fee be debited to the account of the undersigned #19-4675.

The required formal drawings are further submitted herewith.

Respectfully submitted,

Michael J. Striker
Attorney for Applicant
Reg. No.: 27233
103 East Neck Road
Huntington, New York 11743



Paper No. 16

STRIKER, STRIKER & STENBY
103 EAST NECK ROAD
HUNTINGTON, NY 11743

SEP 7 2001

In re Application of)
POHLMANN)
Application No. 08/916,106)
Filed: August 21, 1997)
For: Arrangement for Determining the Penetration Depth)
on Putting in Place Supporting Elements into a Water Bed)

DECISION ON PETITION

This is a decision on the petition, filed May 2, 2001, to withdraw the holding of abandonment of Application No. 08/306,204, filed on May 6, 1999, which petition is being treated as a petition to withdraw the holding of abandonment of Application No. 08/916,106.¹

The petition is **DISMISSED**.

This application was held abandoned for failure to timely file new formal drawings as required in the Notice of Allowability mailed on September 13, 1999. A Notice of Abandonment was mailed on May 25, 2000.

Petitioner asserts that formal drawings were timely filed on October 4, 1999. To support this assertion, petitioner has submitted a copy of a postcard receipt which bears an Office Date stamp of October 8, 1999, and a copy of a transmittal form for formal drawings which bears a Certificate of Mailing dated October 4, 1999.

The formal drawings submitted on October 8, 1999 are not of record in the application file and cannot be located. However, M.P.E.P. § 503 states that "A postcard receipt which itemizes and properly identifies the items which are being filed serves as *prima facie* evidence of receipt in the PTO of all the items listed thereon on the date stamped thereon by the PTO." Accordingly, it is

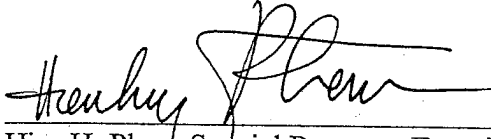
¹Application No. 08/306,204 neither is abandoned nor was filed on May 6, 1999. While Application No. 09/306,204 was filed on May 6, 1999, it is not abandoned. Application No. 09/306,204 is a division of Application No. 08/916,106, filed on August 21, 1997, which application is abandoned for failure to file new formal drawings. Accordingly, it is presumed that the petition is directed to the last mentioned application.

concluded that formal drawings were received in the PTO on October 8, 1999 but lost after receipt thereof.

However, the postcard receipt listing formal drawings for "Ser. No. 08/916,106" also refers to "Docket # 701." According to PTO records, applicant used "Docket No. 701" to refer to Appl. No. 09/306,204 and not to Appl. No. 08/916,106. Furthermore, the copy of the transmittal form references "Serial No. 09/306,204, filed May 6, 1999," and nowhere indicates formal drawings intended for Appl. No. 08/916,106, filed August 21, 1997. An inspection of PTO records² indicates that a Notice of Allowance for Appl. No. 09/306,204 was mailed on September 14, 1999. Accordingly, it is not clear from the record that the formal drawings filed on October 8, 1999 were intended for Application No. 08/916,106 and not for Application No. 09/306,204.

For the above stated reasons, the showing of record fails to establish that formal drawings intended for Application No. 08/916,106 were timely filed on October 4, 1999. Since the petitioner has not made the requisite showing, the petition is dismissed.

Any request for reconsideration of this decision must be submitted within TWO (2) MONTHS from the mailing date of this decision.



Hien H. Phan, Special Program Examiner
Technology Center 2800
Semiconductors, Electrical and Optical
Systems and Components

HP/JC

² The application file for Appl. No. 09/306,204 is not currently available.

UNITED STATES PATENT AND TRADEMARK OFFICE

Examiner:

Art Unit:

Attorney's Doc. #

In re:

Applicant : POHLMANN, R.
Serial No. : 08/306,204
Filed : 05/06/99

STATUS REQUEST

March 26, 2001

Honorable Commissioner
of Patents and Trademarks
Washington, DC 20231

Sir:

The reference is made to the Petition to Withdraw Holding of
Abandonment filed on June 28, 2000.

The Attorney for the Applicant has not yet received any response to the
above mentioned Petition and would appreciate being informed as to the current status
of the subject application.

Respectfully submitted,

Michael J. Striker
Attorney for Applicant
Reg. No. 27233
103 East Neck Road
Huntington, NY 11743
Tel.: (631) 549 4700



**UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office**

Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231

APPLICATION NUMBER	FILING DATE	FIRST NAMED APPLICANT	ATTORNEY DOCKET NO.
08/916,106	08/21/97	FOHLMANN	R

7542/0525
STRIKER STRIKER & STENBY
103 EAST NECK ROAD
HUNTINGTON NY 11743

EXAMINER

NOLAND, T

ART UNIT	PAPER NUMBER
----------	--------------

2856 #14

DATE MAILED: 05/25/00

NOTICE OF ABANDONMENT

This application is abandoned in view of:

- ☐ Applicant's failure to timely file a proper response to the Office letter mailed on _____.
- ☐ A response (with a Certificate of Mailing or Transmission of _____) was received on _____, which is after the expiration of the period for response (including a total extension of _____ month(s)) which expired on _____.
- ☐ A proposed response was received on _____, but it does not constitute a proper response to the final rejection.
- (A proper response to a final rejection consists only of: a timely filed amendment which places the application in condition for allowance; a Notice of Appeal; or the filing of a continuing application under 37 CFR 1.62 (FWC).)
- ☐ No response has been received.
- ☐ Applicant's failure to timely pay the required issue fee within the statutory period of three months from the mailing date of the Notice of Allowance.
- ☐ The issue fee (with a Certificate of Mailing or Transmission of _____) was received on _____.
- ☐ The submitted issue fee of \$_____ is insufficient. The issue fee required by 37 CFR 1.18 is \$_____.
- ☐ The issue fee has not been received.
- ☒ Applicant's failure to timely file new formal drawings as required in the Notice of Allowability.
- ☐ Proposed new formal drawings (with a Certificate of Mailing or Transmission of _____) were received on _____.
- ☐ The proposed new formal drawings filed _____ are not acceptable.
- ☒ No proposed new formal drawings have been received.
- ☐ The express abandonment under 37 CFR 1.62(g) in favor of the FWC application filed on _____.
- ☐ The letter of express abandonment which is signed by the attorney or agent of record, the assignee of the entire interest, or all of the applicants.
- ☐ The letter of express abandonment which is signed by an attorney or agent (acting in a representative capacity under 37 CFR 1.34(a) upon the filing of a continuing application.
- ☐ The decision by the Board of Patent Appeals and Interferences rendered on _____ and because the period for seeking court review of the decision has expired and there are no allowed claims.
- ☐ The reason(s) below:

**ABANDONMENT
CONTACT PERSON IS:
TOM HAWKINS
305-8380**

PART B—ISSUE FEE TRANSMITTAL

Complete and mail this form, together with applicable fees, to:

Box ISSUE FEE
Assistant Commissioner for Patents
Washington, D.C. 20231

MAILING INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE. Blocks 1 through 4 should be completed where appropriate. All further correspondence including the Issue Fee Receipt, the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Legibly mark-up with any corrections or use Block 1)

CORRECTED COPY

MM41/0921

STRIKER STRIKER & STENBY
103 EAST NECK ROAD
HUNTINGTON NY 11743

Note: The certificate of mailing below can only be used for domestic mailings of the Issue Fee Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing.

Certificate of Mailing

I hereby certify that this Issue Fee Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Box Issue Fee address above on the date indicated below.

Michael J. Striker

(Depositor's name)

(Signature)

November 19, 1999

(Date)

APPLICATION NO.

FILING DATE

TOTAL CLAIMS

EXAMINER AND GROUP ART UNIT

DATE MAILED

08/916,106

08/21/97

014

NOLAND, T

2856

09/21/99

First Named
Applicant

POHLMANN,

REINK

TITLE OF
INVENTION ARRANGEMENT FOR DETERMINING THE PENETRATION DEPTH ON PUTTING IN PLACE
SUPPORTING ELEMENTS INTO A WATER BED

ATTY'S DOCKET NO.

CLASS-SUBCLASS

BATCH NO.

APPLN. TYPE

SMALL ENTITY

FEE DUE

DATE DUE

3

073-084.000

B40

UTILITY

NO

\$1210.00

12/21/99

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363). Use of PTO form(s) and Customer Number are recommended, but not required.

☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.

☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47) attached.

2. For printing on the patent front page, list (1) the names of up to 3 registered patent attorneys or agents OR, alternatively, (2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

Michael J. Striker

2

3

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)
PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. Inclusion of assignee data is only appropriate when an assignment has been previously submitted to the PTO or is being submitted under separate cover. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE Menck GmbH

(B) RESIDENCE: (CITY & STATE OR COUNTRY)

Ellerau, Germany

Please check the appropriate assignee category indicated below (will not be printed on the patent)

☐ Individual ☐ corporation or other private group entity ☐ government

4a. The following fees are enclosed (make check payable to Commissioner of Patents and Trademarks):

☒ Issue Fee☐ Advance Order - # of Copies _____

4b. The following fees or deficiency in these fees should be charged to:

DEPOSIT ACCOUNT NUMBER 19-4675

(ENCLOSE AN EXTRA COPY OF THIS FORM)

☒ Issue Fee☐ Advance Order - # of Copies _____

The COMMISSIONER OF PATENTS AND TRADEMARKS IS requested to apply the Issue Fee to the application identified above.

(Authorized Signature)

(Date)

11/19/99

NOTE: The Issue Fee will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the Patent and Trademark Office.

Burden Hour Statement: This form is estimated to take 0.2 hours to complete. Time will vary depending on the needs of the individual case. Any comments on the amount of time required to complete this form should be sent to the Chief Information Officer, Patent and Trademark Office, Washington, D.C. 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND FEES AND THIS FORM TO: Box Issue Fee, Assistant Commissioner for Patents, Washington D.C. 20231

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

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TRANSMITTAL OF FORMAL DRAWINGSDocket No.
701In Re Application Of: **POHLMANN, R.**Serial No.
09/306,204Filing Date
05/06/99

Batch No.

Examiner
NOLAND, T.Art Unit
2856Invention: **METHOD FOR CALCULATING A PENETRATING DEPTH WHEN PUTTING IN SUPPORTING ELEMENTS INTO A WATER BED**Address to:
**Assistant Commissioner for Patents
Washington, D.C. 20231**

Transmitted herewith are:

3 sheets of formal drawing(s) for this application.

Each sheet of drawing indicates the identifying indicia suggested in 37 CFR Section 1.84(c) on the reverse side of the drawing.

Dated: **OCTOBER 4, 1999**

*Signature*I certify that this document and attached formal drawings are being deposited on **October 4 1999** with the U.S. Postal Service as first class mail under 37 C.F.R. 1.8 and addressed to the Assistant Commissioner for Patents, Washington, D.C. 20231.*Signature of Person Mailing Correspondence***MICHAEL J. STRIKER***Typed or Printed Name of Person Mailing Correspondence*



UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office

NOTICE OF ALLOWANCE AND ISSUE FEE DUE

****CORRECTED COPY****

MM41/0921

STRIKER STRIKER & STENBY
103 EAST NECK ROAD
HUNTINGTON NY 11743

APPLICATION NO.	FILING DATE	TOTAL CLAIMS	EXAMINER AND GROUP ART UNIT	DATE MAILED
08/916,106	08/21/97	014	NOLAND, T	2856 09/21/99
First Named Applicant	POHLMANN, REINK			

TITLE OF INVENTION ARRANGEMENT FOR DETERMINING THE PENETRATION DEPTH ON PUTTING IN PLACE SUPPORTING ELEMENTS INTO A WATER BED

ATTY'S DOCKET NO.	CLASS-SUBCLASS	BATCH NO.	APPLN. TYPE	SMALL ENTITY	FEE DUE	DATE DUE
3	073-084.000	B40	UTILITY	NO	\$1210.00	12/21/99

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED.

THE ISSUE FEE MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED.

HOW TO RESPOND TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

- A. If the status is changed, pay twice the amount of the FEE DUE shown above and notify the Patent and Trademark Office of the change in status, or
- B. If the status is the same, pay the FEE DUE shown above.

If the SMALL ENTITY is shown as NO:

- A. Pay FEE DUE shown above, or
- B. File verified statement of Small Entity Status before, or with, payment of 1/2 the FEE DUE shown above.

II. Part B-Issue Fee Transmittal should be completed and returned to the Patent and Trademark Office (PTO) with your ISSUE FEE. Even if the ISSUE FEE has already been paid by charge to deposit account, Part B Issue Fee Transmittal should be completed and returned. If you are charging the ISSUE FEE to your deposit account, section "4b" of Part B-Issue Fee Transmittal should be completed and an extra copy of the form should be submitted.

III. All communications regarding this application must give application number and batch number.

Please direct all communications prior to issuance to Box ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

YOUR COPY

MAILING INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE. Blocks 1 through 4 should be completed where appropriate. All further correspondence including the Issue Fee Receipt, the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Legibly mark-up with any corrections or use Block 1)

****CORRECTED COPY****

MM41/0921

STRIKER STRIKER & STENBY
103 EAST NECK ROAD
HUNTINGTON NY 11743

Note: The certificate of mailing below can only be used for domestic mailings of the Issue Fee Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing.

Certificate of Mailing

I hereby certify that this Issue Fee Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Box Issue Fee address above on the date indicated below.

(Depositor's name)

(Signature)

(Date)

APPLICATION NO.	FILING DATE	TOTAL CLAIMS	EXAMINER AND GROUP ART UNIT	DATE MAILED
08/916,106	08/21/97	014	NOLAND, T	2856 09/21/99
First Named Applicant	POHLMANN,	REINK		

TITLE OF INVENTION **ARRANGEMENT FOR DETERMINING THE PENETRATION DEPTH ON PUTTING IN PLACE SUPPORTING ELEMENTS INTO A WATER BED**

ATTY'S DOCKET NO.	CLASS-SUBCLASS	BATCH NO.	APPLN. TYPE	SMALL ENTITY	FEE DUE	DATE DUE
3	073-084.000	B40	UTILITY	NO	\$1210.00	12/21/99

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363). Use of PTO form(s) and Customer Number are recommended, but not required.

☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.

☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47) attached.

2. For printing on the patent front page, list (1) the names of up to 3 registered patent attorneys or agents OR, alternatively, (2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1 _____
2 _____
3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)
PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. Inclusion of assignee data is only appropriate when an assignment has been previously submitted to the PTO or is being submitted under separate cover. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

(B) RESIDENCE: (CITY & STATE OR COUNTRY)

Please check the appropriate assignee category indicated below (will not be printed on the patent)

☐ individual ☐ corporation or other-private group entity ☐ government

4a. The following fees are enclosed (make check payable to Commissioner of Patents and Trademarks):

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☐ Issue Fee
☐ Advance Order - # of Copies _____

The COMMISSIONER OF PATENTS AND TRADEMARKS IS requested to apply the Issue Fee to the application identified above.

(Authorized Signature)

(Date)

NOTE: The Issue Fee will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the Patent and Trademark Office.

Burden Hour Statement: This form is estimated to take 0.2 hours to complete. Time will vary depending on the needs of the individual case. Any comments on the amount of time required to complete this form should be sent to the Chief Information Officer, Patent and Trademark Office, Washington, D.C. 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND FEES AND THIS FORM TO: Box Issue Fee, Assistant Commissioner for Patents, Washington D.C. 20231

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Patent and Trademark Office

Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231

SERIAL NUMBER	FILING DATE	FIRST NAMED APPLICANT	ATTORNEY DOCKET NO.
---------------	-------------	-----------------------	---------------------

03/916,106 03/21/97 POHLMANN

R

EXAMINER

MULAND, J

ART UNIT	PAPER NUMBER
----------	--------------

2306

13

DATE MAILED: 09/21/99

STRIKER STRIKER & STENBY
100 EAST ROCK ROAD
HUNTINGTON NY 11743

MM41/0921

NOTICE OF ALLOWABILITY

PART I.

- ☐ This communication is responsive to _____
- ☒ All the claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice Of Allowance And Issue Fee Due or other appropriate communication will be sent in due course.
- ☒ The allowed claims are 2, 4, 5, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100
- ☐ The drawings filed on _____ are acceptable.
- ☐ Acknowledgment is made of the claim for priority under 35 U.S.C. 119. The certified copy has ☒ been received. ☐ not been received. ☐ been filed in parent application Serial No. _____, filed on _____
- ☐ Note the attached Examiner's Amendment.
- ☐ Note the attached Examiner Interview Summary Record, PTOL-413.
- ☐ Note the attached Examiner's Statement of Reasons for Allowance.
- ☐ Note the attached NOTICE OF REFERENCES CITED, PTO-892.
- ☐ Note the attached INFORMATION DISCLOSURE CITATION, PTO-1449.

PART II.

A SHORTENED STATUTORY PERIOD FOR RESPONSE to comply with the requirements noted below is set to EXPIRE THREE MONTHS FROM THE "DATE MAILED" indicated on this form. Failure to timely comply will result in the ABANDONMENT of this application. Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

- ☐ Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL APPLICATION, PTO-152, which discloses that the oath or declaration is deficient. A SUBSTITUTE OATH OR DECLARATION IS REQUIRED.
- ☒ APPLICANT MUST MAKE THE DRAWING CHANGES INDICATED BELOW IN THE MANNER SET FORTH ON THE REVERSE SIDE OF THIS PAPER.
 - ☒ Drawing informalities are indicated on the NOTICE RE PATENT DRAWINGS, PTO-948, attached hereto or to Paper No. 7. CORRECTION IS REQUIRED.
 - ☒ The proposed drawing correction filed on 9/1/99 has been approved by the examiner. CORRECTION IS REQUIRED.
 - ☐ Approved drawing corrections are described by the examiner in the attached EXAMINER'S AMENDMENT. CORRECTION IS REQUIRED.
 - ☒ Formal drawings are now REQUIRED.

Any response to this letter should include in the upper right hand corner, the following information from the NOTICE OF ALLOWANCE AND ISSUE FEE DUE: ISSUE BATCH NUMBER, DATE OF THE NOTICE OF ALLOWANCE, AND SERIAL NUMBER.

Attachments:

- Examiner's Amendment
- Examiner Interview Summary Record, PTOL-413
- Reasons for Allowance
- Notice of References Cited, PTO-892
- Information Disclosure Citation, PTO-1449
- Notice of Informal Application, PTO-152
- Notice re Patent Drawings, PTO-948
- Listing of Bonded Draftsmen
- Other

9/1/99



UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office

NOTICE OF ALLOWANCE AND ISSUE FEE DUE

MM41/0913

STRIKER STRIKER & STENBY
103 EAST NECK ROAD
HUNTINGTON NY 11743

Dec. 13, 99

APPLICATION NO.	FILING DATE	TOTAL CLAIMS	EXAMINER AND GROUP ART UNIT	DATE MAILED
08/916,106	09/21/97	014	NOLAND, T	2856 09/13/99
First Named Applicant	POHLMANN, 35 USC 154(b) term ext. = 0 Days.			

TITLE OF INVENTION ARRANGEMENT FOR DETERMINING THE PENETRATION DEPTH ON PUTTING IN PLACE SUPPORTING ELEMENTS INTO A WATER BED

ATTY'S DOCKET NO.	CLASS-SUBCLASS	BATCH NO.	APPLN. TYPE	SMALL ENTITY	FEE DUE	DATE DUE
3	073-084.000	B40	UTILITY	NO	\$1210.00	12/13/99

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED.

THE ISSUE FEE MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED.

HOW TO RESPOND TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

- A. If the status is changed, pay twice the amount of the FEE DUE shown above and notify the Patent and Trademark Office of the change in status, or
- B. If the status is the same, pay the FEE DUE shown above.

If the SMALL ENTITY is shown as NO:

- A. Pay FEE DUE shown above, or
- B. File verified statement of Small Entity Status before, or with, payment of 1/2 the FEE DUE shown above.

II. Part B-Issue Fee Transmittal should be completed and returned to the Patent and Trademark Office (PTO) with your ISSUE FEE. Even if the ISSUE FEE has already been paid by charge to deposit account, Part B Issue Fee Transmittal should be completed and returned. If you are charging the ISSUE FEE to your deposit account, section "4b" of Part B-Issue Fee Transmittal should be completed and an extra copy of the form should be submitted.

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IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

YOUR COPY

PART B—ISSUE FEE TRANSMITTAL

Complete and mail this form, together with applicable fees, to:

Box ISSUE FEE
Assistant Commissioner for Patents
Washington, D.C. 20231

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CURRENT CORRESPONDENCE ADDRESS (Note: Legibly mark-up with any corrections or use Block 1)

MM41/0913

STRIKER STRIKER & STENBY
103 EAST NECK ROAD
HUNTINGTON NY 11743

Note: The certificate of mailing below can only be used for domestic mailings of the Issue Fee Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing.

Certificate of Mailing

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(Depositor's name)

(Signature)

(Date)

APPLICATION NO.	FILING DATE	TOTAL CLAIMS	EXAMINER AND GROUP ART UNIT	DATE MAILED
08/916,106	08/21/97	014	NOLAND, T	2856 09/13/99
First Named Applicant	POHLMANN, 35 USC 154(b) term ext. = 0 Days.			

TITLE OF INVENTION

ARRANGEMENT FOR DETERMINING THE PENETRATION DEPTH ON PUTTING IN PLACE
SUPPORTING ELEMENTS INTO A WATER BED

ATTY'S DOCKET NO.	CLASS-SUBCLASS	BATCH NO.	APPLN. TYPE	SMALL ENTITY	FEE DUE	DATE DUE
3	073-084.000	B40	UTILITY	NO	\$1210.00	12/13/99

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).
Use of PTO form(s) and Customer Number are recommended, but not required.

- ☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
- ☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47) attached.

2. For printing on the patent front page, list
(1) the names of up to 3 registered patent attorneys or agents OR, alternatively, (2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1 _____
2 _____
3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)
PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. Inclusion of assignee data is only appropriate when an assignment has been previously submitted to the PTO or is being submitted under separate cover. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

(B) RESIDENCE: (CITY & STATE OR COUNTRY)

Please check the appropriate assignee category indicated below (will not be printed on the patent)

- ☐ individual ☐ corporation or other private group entity ☐ government

4a. The following fees are enclosed (make check payable to Commissioner of Patents and Trademarks):

- ☐ Issue Fee
☐ Advance Order - # of Copies _____

4b. The following fees or deficiency in these fees should be charged to:

DEPOSIT ACCOUNT NUMBER _____
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- ☐ Issue Fee
☐ Advance Order - # of Copies _____

The COMMISSIONER OF PATENTS AND TRADEMARKS IS requested to apply the Issue Fee to the application identified above.

(Authorized Signature)

(Date)

NOTE: The Issue Fee will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the Patent and Trademark Office.

Burden Hour Statement: This form is estimated to take 0.2 hours to complete. Time will vary depending on the needs of the individual case. Any comments on the amount of time required to complete this form should be sent to the Chief Information Officer, Patent and Trademark Office, Washington, D.C. 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND FEES AND THIS FORM TO: Box Issue Fee, Assistant Commissioner for Patents, Washington D.C. 20231

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TRANSMIT THIS FORM WITH FEE



UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office

Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231

SERIAL NUMBER	FILING DATE	FIRST NAMED APPLICANT	ATTORNEY DOCKET NO.
---------------	-------------	-----------------------	---------------------

087916.106 08/21/97 POHLMANN

EXAMINER

MM41/0913

STRIKER STRIKER & STENBY
103 EAST NECK ROAD
HUNTINGTON NY 11743

ART UNIT PAPER NUMBER

DATE MAILED:

09/13/99

NOTICE OF ALLOWABILITY

PART I.

- ☒ This communication is responsive to the communication dated Sept 1, 1999.
- ☒ All the claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice Of Allowance And Issue Fee Due or other appropriate communication will be sent in due course.
- ☒ The allowed claims are 1-37
- ☐ The drawings filed on _____ are acceptable.
- ☒ Acknowledgment is made of the claim for priority under 35 U.S.C. 119. The certified copy has ☒ been received. ☐ not been received. ☐ been filed in parent application Serial No. _____, filed on _____
- ☐ Note the attached Examiner's Amendment.
- ☐ Note the attached Examiner Interview Summary Record, PTOL-413.
- ☐ Note the attached Examiner's Statement of Reasons for Allowance.
- ☐ Note the attached NOTICE OF REFERENCES CITED, PTO-892.
- ☐ Note the attached INFORMATION DISCLOSURE CITATION, PTO-1449.

PART II.

A SHORTENED STATUTORY PERIOD FOR RESPONSE to comply with the requirements noted below is set to EXPIRE THREE MONTHS FROM THE "DATE MAILED" indicated on this form. Failure to timely comply will result in the ABANDONMENT of this application. Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

- ☐ Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL APPLICATION, PTO-152, which discloses that the oath or declaration is deficient. A SUBSTITUTE OATH OR DECLARATION IS REQUIRED.
- ☒ APPLICANT MUST MAKE THE DRAWING CHANGES INDICATED BELOW IN THE MANNER SET FORTH ON THE REVERSE SIDE OF THIS PAPER.
 - ☒ Drawing informalities are indicated on the NOTICE RE PATENT DRAWINGS, PTO-948, attached hereto or to Paper No. 7. CORRECTION IS REQUIRED.
 - ☒ The proposed drawing correction filed on 9/1/99 has been approved by the examiner. CORRECTION IS REQUIRED.
 - ☐ Approved drawing corrections are described by the examiner in the attached EXAMINER'S AMENDMENT. CORRECTION IS REQUIRED.
 - ☒ Formal drawings are now REQUIRED.

Any response to this letter should include in the upper right hand corner, the following information from the NOTICE OF ALLOWANCE AND ISSUE FEE DUE: ISSUE BATCH NUMBER, DATE OF THE NOTICE OF ALLOWANCE, AND SERIAL NUMBER.

Attachments:

- Examiner's Amendment
- Examiner Interview Summary Record, PTOL- 413
- Reasons for Allowance
- Notice of References Cited, PTO-892
- Information Disclosure Citation, PTO-1449
- Notice of Informal Application, PTO-152
- Notice re Patent Drawings, PTO-948
- Listing of Bonded Draftsmen
- Other

9/1/99

UNITED STATES PATENT AND TRADEMARK OFFICE

Examiner: T. Noland

Art Unit: 2856

In re:

Applicant: POHLMANN

Serial No.: 08/916,106

Filed: August 21, 1997

A M E N D M E N T

August 30, 1999

Hon. Commissioner of
Patents and Trademarks
Washington, D.C. 20231

Sir:

Responsive to the Office Action of June 29, 1999, please
amend the application as follows:

In the claims:

Claim 27, line 2, change "as" to -- into --.

REMARKS

The last Office Action has been carefully considered.

It is noted that the Examiner required the correction of the drawings.

Also, claim 27 has been rejected under 35 U.S.C. 112.

At the same time the Examiner indicated that the independent claims would be allowable if rewritten to overcome the rejection.

In connection with the Examiner's requirements, applicants have submitted herewith a copy of Figure 1 with the proposed labeling of box 16. It is believed that the Examiner's grounds for the objection to the drawings are eliminated.

Claim 27 has been amended in compliance with the Examiner's requirements and it is believed that the rejection of this claim under 35 U.S.C. 112 should also be considered as not tenable and should be withdrawn.

In view of the Examiner's indication of the allowability of the

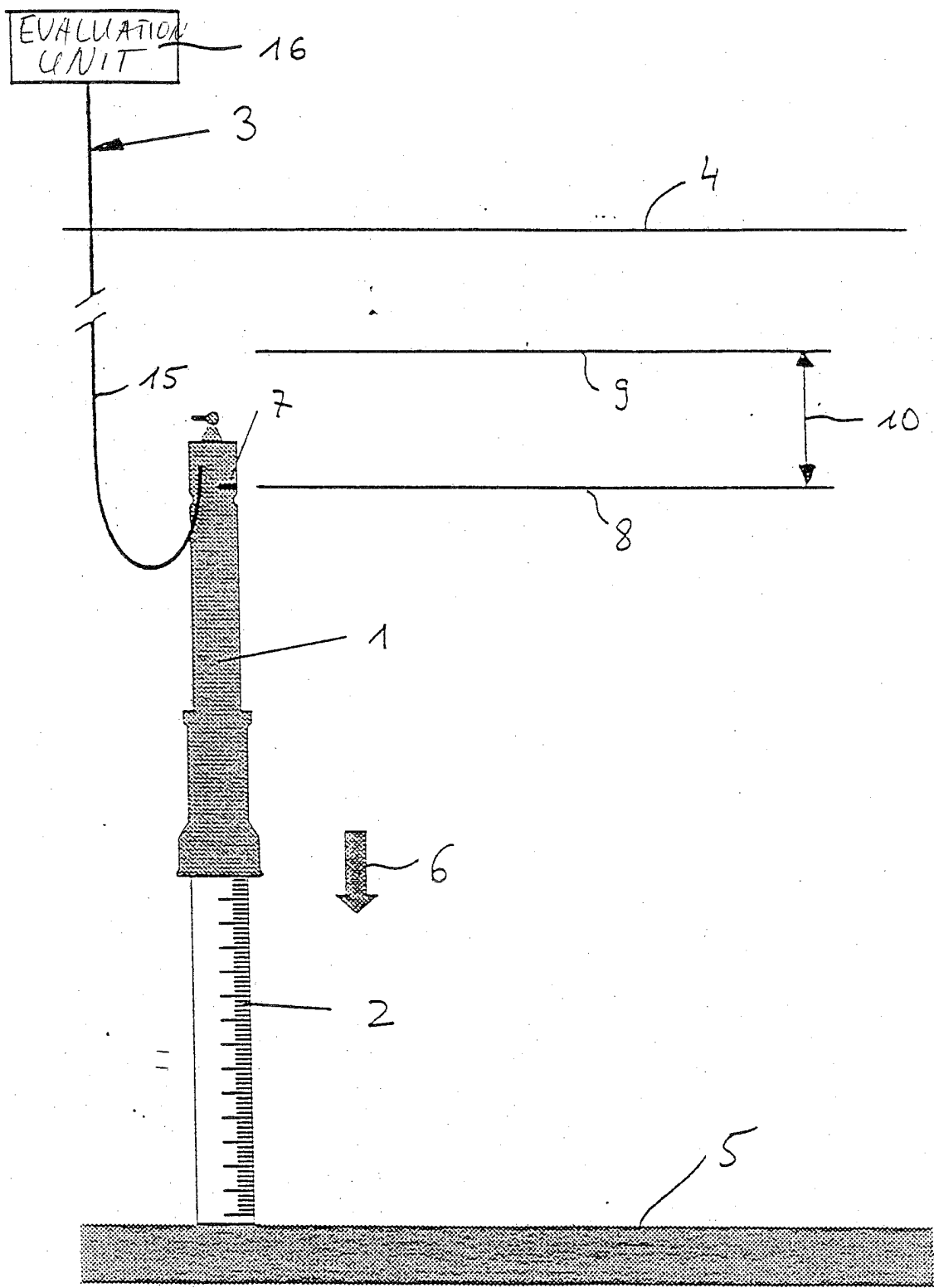
claims, it is believed that the present application should be considered as allowable, and such action is earnestly solicited.

Should the Examiner require or consider it advisable that the specification, claims and/or drawings be further amended or corrected in formal respects in order to place this case in condition for final allowance, then it is respectfully requested that such amendments or corrections be carried out by Examiner's Amendment, and the case be passed to issue. Any costs involved should be charged to the deposit account of the undersigned (No. 19-4675). Alternatively, should the Examiner feel that a personal discussion might be helpful in advancing this case to allowance, he is invited to telephone the undersigned (at 516-549-4700).

Respectfully submitted,

Michael J. Striker
Attorney for Applicants
Reg. No. 27233

Fig. 1





UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office

Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
-----------------	-------------	----------------------	---------------------

08/916,106 08/21/97 POHLMANN

R

STRIKER STRIKER & STENBY
103 EAST NECK ROAD
HUNTINGTON NY 11743

MM32/0629

EXAMINER

NOLAND, T

ART UNIT

PAPER NUMBER

2856

DATE MAILED:

06/29/99

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.

08/9/06

Applicant(s)

Polimer

Examiner

Tom Noland

Group Art Unit

2856

--The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address--

Period for Response

A SHORTENED STATUTORY PERIOD FOR RESPONSE IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a response be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for response specified above is less than thirty (30) days, a response within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for response is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to respond within the set or extended period for response will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

Status

- ☒ Responsive to communication(s) filed on 5/11/95
- ☐ This action is **FINAL**.
- ☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- ☒ Claim(s) 24-37 and 50 is/are pending in the application.
- Of the above claim(s) _____ is/are withdrawn from consideration.
- ☒ Claim(s) 24-26, 28-37 and 50 is/are allowed.
- ☒ Claim(s) 27 is/are rejected.
- ☐ Claim(s) _____ is/are objected to.
- ☐ Claim(s) _____ are subject to restriction or election requirement.

Application Papers

- ☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.
- ☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.
- ☒ The drawing(s) filed on 8/21/97 is/are objected to by the Examiner.
- ☐ The specification is objected to by the Examiner.
- ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119 (a)-(d)

- ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
 - ☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been received.
 - ☐ received in Application No. (Series Code/Serial Number) _____
 - ☐ received in this national stage application from the International Bureau (PCT Rule 1.7.2(a)).

*Certified copies not received: _____

Attachment(s)

- ☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____
- ☒ Notice of References Cited, PTO-892
- ☐ Notice of Draftsperson's Patent Drawing Review, PTO-948
- ☐ Interview Summary, PTO-413
- ☐ Notice of Informal Patent Application, PTO-152
- ☐ Other _____

Office Action Summary

Art Unit: 2856

1. The amendment filed May 11, 1999 has been entered. In view of the amendment the restriction requirement is now moot.
2. The drawings are objected to because in Fig. 1 box element 16 should be legended --- evaluation unit ---. Correction is required.
3. Applicant is required to submit a proposed drawing correction in reply to this Office action. However, formal correction of the noted defect can be deferred until the application is allowed by the examiner.
4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The cited references show systems for monitoring penetration depth in water beds. However, neither they or any other prior art of record showed or would have made obvious an arrangement for determining a penetration depth when putting in place supporting elements into a waterbed including a pressure sensor and evaluating means placed and interacting as set forth in claim 24.
5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
6. Claim 27 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Art Unit: 2856

It is unclear what is meant by "converting said readings as electrical signals" in line 2 since although not specifically claimed yet it is apparent from the disclosure that the readings were already electrical signals.

7. Claims 24-26, 28-37 and 50 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

8. Claim 27 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tom Noland whose telephone number is (703) 305-4765.

The fax phone number for the organization where this application or proceeding is assigned is (703) 308-7382.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4900.

6/28/99
Thomas P. Noland
Primary Examiner
Art Unit 2856

Thomas P. Noland

Noland/ds
06/26/99

SERIAL NO.

08/916/106

GROUP/ART UNIT

2856

ATTACHMENT
TO
PAPER
NUMBER

10

NOTICE OF REFERENCES CITED

APPLICANT(S)

Pohlmann

U.S. PATENT DOCUMENTS

*		DOCUMENT NO.	DATE	NAME	CLASS	SUB-CLASS	FILING DATE IF APPROPRIATE
A		4186373	1-1980	Thompson	73	170,32X	
B		4217709	8-1980	Cosgrove	37	308	
C							
D							
E							
F							
G							
H							
I							
J							
K							

FOREIGN PATENT DOCUMENTS

*		DOCUMENT NO.	DATE	COUNTRY	NAME	CLASS	SUB-CLASS	PERTINENT SHTS. DWG.	PP. SPEC.
L		2165715	4-1986	UK	Weizel et al				
M									
N									
O									
P									
Q									

OTHER REFERENCES (Including Author, Title, Date, Pertinent Pages, Etc.)

R

S

T

U

PETITION FOR EXTENSION OF TIME UNDER 37 CFR 1.136(a)
(Large Entity)

Docket No.

In Re Application Of: **PHLMANN, R.**

Serial No.
08/916,106

Filing Date
08/21/97

Examiner
NOLAND

Group Art Unit
2856

Invention: **AN ARRANGEMENT FOR DETERMINING THE PENETRATION DEPTH ON PUTTING IN PLACE SUPPORTING ELEMENTS INTO A WATER BED**

TO THE ASSISTANT COMMISSIONER FOR PATENTS:

This is a request under the provisions of 37 CFR 1.136(a) to extend the period for filing a response to the Office Action of **01/20/99** above-identified application.
Date

The requested extension is as follows (check time period desired):

☐ One month ☐ Two months ☒ Three months ☐ Four months ☐ Five months

from: **FEBRUARY 20, 1999**
Date

until: **MAY 20, 1999**
Date

The fee for the extension of time is **\$870** and is to be paid as follows:

- ☒ A check in the amount of the fee is enclosed.
- ☐ The Commissioner is hereby authorized to charge any fees which may be required, or credit any overpayment, to Deposit Account No. **19-4675**.
A duplicate copy of this sheet is enclosed.
- ☒ If an additional extension of time is required, please consider this a petition therefor and charge any additional fees which may be required to Deposit Account No. **19-4675**.
A duplicate copy of this sheet is enclosed.

Dated: **MAY 5, 1999**

Signature

I certify that this document and fee is being deposited on **May 5, 1999** with the U.S. Postal Service as first class mail under 37 C.F.R. 1.8 and is addressed to the Assistant Commissioner for Patents, Washington, D.C. 20231.

Signature of Person Mailing Correspondence

MICHAEL J. STRIKER

Typed or Printed Name of Person Mailing Correspondence

CC:

UNITED STATES PATENT AND TRADEMARK OFFICE

Examiner: T. Noland

Art Unit: 2856

In re:

Applicant: POHLMANN

Serial No.: 08/916,106

Filed: August 21, 1997

A M E N D M E N T

May 4, 1999

Hon. Commissioner of
Patents and Trademarks
Washington, DC 20231

Sir:

Responsive to the Office Action of January 20, 1999, please
amend the application as follows:

In the claims:

Cancel claims 38-49 without prejudice.

Add the following claims:

50. An arrangement as defined in claim 24; and further comprising a digital serial interface through which the signal of said pressure sensor is transmitted to said evaluating means.

REMARKS

This Amendment is submitted in response to the Office Action of January 20, 1999.

The Examiner indicated that the present application contained two inventions, namely an arrangement for determining penetration depth when putting in place supporting elements into a waterbed, defined in claims 24-37, and a method for determining a penetration depth when putting in place supporting elements into a waterbed, defined in claims 38-49.

With the present Amendment, applicant first of all added claim 50, which also defines an arrangement.

Responsive to the Examiner's requirement, applicant has elected for further prosecution the first invention, namely the arrangement for determining penetration depth when putting in place supporting elements into a waterbed.

Claims 24-37 and 50 define the elected invention.

It is respectfully submitted to prosecute the elected invention.

Consideration and allowance of the present application is respectfully requested.

Should the Examiner require or consider it advisable that the specification, claims and/or drawings be further amended or corrected in formal respects in order to place this case in condition for final allowance, then it is respectfully requested that such amendments or corrections be carried out by Examiner's Amendment, and the case be passed to issue. Any costs involved should be charged to the deposit account of the undersigned (No. 19-4675). Alternatively, should the Examiner feel that a personal discussion might be helpful in advancing this case to allowance, he is invited to telephone the undersigned (at 516-549-4700).

Respectfully submitted,

Michael J. Striker
Attorney for Applicants
Reg. No. 27233



**UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office**

Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, DC 20231

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
08/915.106	08/21/97	POHLMANN	R

STRIKER STRIKER & STENBY
103 EAST NECK ROAD
HUNTINGTON NY 11743

MM41/0120

EXAMINER

NOLAND, T

ART UNIT

2856

PAPER NUMBER

DATE MAILED: 01/20/99

Feb. 20, 99

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.

08/9/06

Applicant(s)

Pohlmann

Examiner

Tom Noland

Group Art Unit

2856

--The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address--

Period for Response

A SHORTENED STATUTORY PERIOD FOR RESPONSE IS SET TO EXPIRE 1 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a response be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for response specified above is less than thirty (30) days, a response within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for response is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to respond within the set or extended period for response will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

Status

- ☒ Responsive to communication(s) filed on 8/21/97
- ☐ This action is **FINAL**.
- ☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- ☒ Claim(s) 24-49 is/are pending in the application.
- Of the above claim(s) _____ is/are withdrawn from consideration.
- ☐ Claim(s) _____ is/are allowed.
- ☐ Claim(s) _____ is/are rejected.
- ☐ Claim(s) _____ is/are objected to.
- ☒ Claim(s) 24-49 are subject to restriction or election requirement.

Application Papers

- ☒ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.
- ☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.
- ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.
- ☐ The specification is objected to by the Examiner.
- ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119 (a)-(d)

- ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
- ☒ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been received.
- ☐ received in Application No. (Series Code/Serial Number) _____.
- ☐ received in this national stage application from the International Bureau (PCT Rule 1.7.2(a)).

*Certified copies not received: _____

Attachment(s)

- ☒ Information Disclosure Statement(s), PTO-1449, Paper No(s). 4 filed 8/21/97
- ☐ Notice of References Cited, PTO-892
- ☒ Notice of Draftsperson's Patent Drawing Review, PTO-948
- ☐ Interview Summary, PTO-413
- ☐ Notice of Informal Patent Application, PTO-152
- ☐ Other _____

Office Action Summary

Art Unit: 2856

1. The Group and/or Art Unit location of your application in the PTO has changed. To aid in correlating any papers for this application, all further correspondence regarding this application should be directed to Group Art Unit 2856.
2. The preliminary amendment filed August 21, 1997 has been entered
3. The numbering of claims is not accordance with 37 CFR 1.126 which requires the original numbering of the claims to be preserved throughout the prosecution. When claims are canceled, the remaining claims must not be renumbered. When new claims are presented, they must be numbered consecutively beginning with the number next following the highest numbered claims previously presented (whether entered or not).

Misnumbered claims 35-50 been renumbered as claims 35-49. Any new additional claim presentation should begin with claim 50. In line 1 of renumbered claims 36-37 and 39-49 the base claim number from which the claim depends has been reduced by one, e.g. in the claim renumbered as claim 36, in line thereof "claim 36" has been replaced with -- -- -- claim 35 -- -- .

4. The abstract amendment has been entered. Applicant's representation is reminded that bracketing out deletion and underlining additions should be used only when amending claims. 37 CFR 1.121.

5. Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 24-37, drawn to an arrangement for determining penetration depth when putting in place supporting elements into a waterbed, classified in class 73, subclass 84.

Art Unit: 2856

II. Claims 38-49, drawn to a method for determining a penetration depth when putting in place supporting elements into a water bed, classified in class 73, subclass 84.

6. The inventions are distinct, each from the other because:

Inventions Group 2 and Group 1 are related as process and apparatus for its practice. The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (MPEP § 806.05(e)). In this case the apparatus as claimed can be used to practice another and materially different process such as use in determining penetration depth after an initial placement without any determination whether the penetration depth is sufficient, etc. It might be presumed sufficient from prior knowledge.

7. Because these inventions are distinct for the reasons given above and the search required for Group 1 is not required for Group 2, and vice-versa, restriction for examination purposes as indicated is proper.

8. A telephone call was made to Mr. Michael J. Striker on January 12, 1999 to request an oral election to the above restriction requirement, but did not result in an election being made.

9. Applicant is advised that the reply to this requirement to be complete must include an election of the invention to be examined even though the requirement be traversed (37

CFR 1.143).

Art Unit: 2856

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tom Noland whose telephone number is (703) 305-4765.

The fax phone number for the organization where this application or proceeding is assigned is (703) 308-7382.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4900.

1/15/99
Thomas P. Noland
Primary Examiner
Art Unit 2856



Noland/dc
January 13, 1999

ATTY. DOCKET NO.

SERIAL NO.

08/916,106

APPLICANT

POHLMANN, R.

FILING DATE

8/21/97

GROUP

2800

LIST OF PRIOR ART CITED BY APPLICANT

(Use several sheets if necessary)

U.S. PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
	AA						
	AB						
	AC						
	AD						
	AE						
	AF						
	AG						
	AH						
	AI						
	AJ						
	AK						

FOREIGN PATENT DOCUMENTS

		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION	
							YES	NO
for	AL	DE3338135 A1	050985	GERMANY	 			X
	AM							
	AN							
	AO							
	AP							

OTHER PRIOR ART (Including Author, Title, Date, Pertinent Pages, Etc.)

	AR		
	AS		
	AT		

EXAMINER

Jon Nohel

DATE CONSIDERED

11/12/99

EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.



**UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office**

ASSISTANT SECRETARY AND COMMISSIONER
OF PATENTS AND TRADEMARKS
Washington, D.C. 20231

APRIL 01, 1998

PTAS

MICHAEL J. STRIKER
360 LEXINGTON AVENUE
NEW YORK, NEW YORK 10017



100633786A

**UNITED STATES PATENT AND TRADEMARK OFFICE
NOTICE OF RECORDATION OF ASSIGNMENT DOCUMENT**

THE ENCLOSED DOCUMENT HAS BEEN RECORDED BY THE ASSIGNMENT DIVISION OF THE U.S. PATENT AND TRADEMARK OFFICE. A COMPLETE MICROFILM COPY IS AVAILABLE AT THE ASSIGNMENT SEARCH ROOM ON THE REEL AND FRAME NUMBER REFERENCED BELOW.

PLEASE REVIEW ALL INFORMATION CONTAINED ON THIS NOTICE. THE INFORMATION CONTAINED ON THIS RECORDATION NOTICE REFLECTS THE DATA PRESENT IN THE PATENT AND TRADEMARK ASSIGNMENT SYSTEM. IF YOU SHOULD FIND ANY ERRORS OR HAVE QUESTIONS CONCERNING THIS NOTICE, YOU MAY CONTACT THE EMPLOYEE WHOSE NAME APPEARS ON THIS NOTICE AT 703-308-9723. PLEASE SEND REQUEST FOR CORRECTION TO: U.S. PATENT AND TRADEMARK OFFICE, ASSIGNMENT DIVISION, BOX ASSIGNMENTS, NORTH TOWER BUILDING, SUITE 10C35, WASHINGTON, D.C. 20231.

RECORDATION DATE: 01/29/1998

REEL/FRAME: 8949/0499

NUMBER OF PAGES: 2

BRIEF: ASSIGNMENT OF ASSIGNOR'S INTEREST (SEE DOCUMENT FOR DETAILS).

ASSIGNOR:

POHLMANN, REINK

DOC DATE: 09/08/1997

ASSIGNEE:

MENK GMBH

WERNER-VON-SIEMENS STRASSE 2

ELLERAU, FED REP GERMANY D-25479

SERIAL NUMBER: 08916106

FILING DATE: 08/21/1997

PATENT NUMBER:

ISSUE DATE:

DOROTHY RILEY, EXAMINER
ASSIGNMENT DIVISION
OFFICE OF PUBLIC RECORDS

02-13-1998

SHEET

U.S. DEPARTMENT OF COMMERCE
Patent and Trademark Office



100633786

02/13/98

37 USC 1510

To the Honorable Commissioner of Patents

Name of conveying party(ies):

POHLMANN

PTO

the attached original documents or copy thereof.

2. Name and address of receiving party(ies):

Name: **MENK GmbH**

Address: **WERNER-VON-SIEMENS STRASSE 2**

Additional names(s) of conveying party(ies) attached? ☐ Yes ☒ No

3. Nature of conveyance:

☒ Assignment

☐ Merger

☐ Security Agreement

☐ Change of Name

☐ Other

City: **ELLERAU**

State/Prov.: _____

Country: **GERMANY**

ZIP: **D-25479**

Execution Date: **SEPTEMBER 8, 1997**

Additional name(s) & address(es) attached? ☐ Yes ☒ No

4. Application number(s) or registration numbers(s):

If this document is being filed together with a new application, the execution date of the application is: _____

Patent Application No.

Filing date

B. Patent No.(s)

08/916,106

08/21/97

Additional numbers attached? ☐ Yes ☒ No

5. Name and address of party to whom correspondence concerning document should be mailed:

Name: **MICHAEL J. STRIKER**

Registration No. **27233**

Address: **360 LEXINGTON AVENUE**

6. Total number of applications and patents involved: **1**

7. Total fee (37 CFR 3.41):.....\$ **40.00**

☒ Enclosed

☐ Authorized to be charged to deposit account

8. Deposit account number:

19-4675

(Attach duplicate copy of this page if paying by deposit account)

DO NOT USE THIS SPACE

9. Statement and signature.

To the best of my knowledge and belief, the foregoing information is true and correct and any attached copy is a true copy of the original document.

MICHAEL J. STRIKER

Name of Person Signing

Signature

JANUARY 23, 1998

Date

Total number of pages including cover sheet, attachments, and documents: **2**

UNITED STATES PATENT AND TRADEMARK OFFICE

Examiner:

Group: 3506

Attorney Docket #:

Applicant(s): POHLMANN, R.

Serial No.: 08/916,106

Filed: AUGUST 21, 1997

For : AN ARRANGEMENT FOR DETERMINING THE
PENETRATION DEPTH ON PUTTING IN
PLACE SUPPORTING ELEMENTS INTO A WATER
BED

Commissioner of Patents
and Trademarks
Washington, D.C. 20231

January 22, 1998

Sir:

The subject application was filed without the signature of the inventors.

Joinder papers executed by the inventors are submitted herewith.

The required surcharge is submitted herewith.

Should the enclosed amount not be sufficient, then it is respectfully requested that
such amount be charged to the account of the undersigned (19-4675).

Respectfully submitted,

Michael J. Striker
Attorney for Applicant(s)
Reg. No. 27233

**NOTICE OF DRAFTPERSON'S
PATENT DRAWING REVIEW**

The drawing filed (insert date) _____ are:

A. _____ not objected to by the Draftperson under 37 CFR 1.84 or 1.152.

B. ☒ objected to by the Draftperson under 37 CFR 1.84 or 1.152 as indicated below. The Examiner will require submission of new, corrected drawings where necessary. Corrected drawings must be submitted according to the instructions on the back of this notice.**1. DRAWINGS. 37 CFR 1.84(a): Acceptable categories of drawings:**
Black ink. Color.

_____ Color drawing are not acceptable until petition is granted.

Fig.(s) _____

_____ Pencil and non black ink is not permitted. Fig(s) _____

2. PHOTOGRAPHS. 37 CFR 1.84(b)

_____ Photographs are not acceptable until petition is granted,

_____ 3 full-tone sets are required. Fig(s) _____

_____ Photographs not properly mounted (must bryistol board or photographic double-weight paper). Fig(s) _____

_____ Poor quality (half-tone). Fig(s) _____

3. TYPE OF PAPER. 37 CFR 1.84(e)

_____ Paper not flexible, strong, white and durable.

Fig.(s) _____

_____ Erasures, alterations, overwritings, interlineations, folds, copy machine marks not acceptable. (too thin)

_____ Mylar, vellum paper is not acceptable (too thin).

Fig(s) _____

4. SIZE OF PAPER. 37 CFR 1.84(F): Acceptable sizes:

_____ 21.0 cm by 29.7 cm (DIN size A4)

_____ 21.6 cm by 27.9 cm (8 1/2 x 11 inches)

_____ All drawings sheets not the same size.

Sheet(s) _____

5. MARGINS. 37 CFR 18.4(g): Acceptable margins:Top 2.5 cm Left 2.5 cm Right 1.5 cm Bottom 1.0 cm
SIZE: A4 SizeTop 2.5 cm Left 2.5 cm Right 1.5 cm Bottom 1.0 cm
SIZE: 8 1/2 x 11

_____ Margins not acceptable. Fig(s) _____

_____ Top (T) _____ Left (L)

_____ Right (R) _____ Bottom (B)

6. VIEWS. CFR 1.84(h)

REMINDER: Specification may require revision to correspond to drawing changes.

_____ Views connected by projection lines or lead lines.

Fig.(s) _____

Partial views. 37 CFR 1.84(h)(2)

_____ Brackets needed to show figure as one entity.

Fig.(s) _____

_____ Views not labeled separately or properly.

Fig.(s) _____

_____ Enlarged view not labeled separately or properly.

Fig.(s) _____

7. SECTIONAL VIEWS. 37 CFR 1.84(h)(3)

_____ Hatching not indicated for sectional portions of an object.

Fig.(s) _____

_____ Sectional designation should be noted with Arabic or

Roman numbers. Fig.(s) _____

8. ARRANGEMENT OF VIEWS. 37 CFR 1.84(i)

_____ Words do not appear on a horizontal, left-to-right fashion when page is either upright or turned, so that the top becomes the right side, except for graphs. Fig.(s) _____

_____ Views not on the same plane on drawing sheet. Fig.(s) _____

9. SCALE. 37 CFR 1.84(k)

_____ Scale not large enough to show mechanism without crowding when drawing is reduced in size to two-thirds in reproduction.

Fig.(s) _____

10. CHARACTER OF LINES, NUMBERS, & LETTERS. 37 CFR 1.84(l)

X _____ Lines, numbers & letters not uniformly thick and well defined, clean, durable and black (poor line quality).

Fig.(s) 1-5**11. SHADING. 37 CFR 1.84(m)**

_____ Solid black areas pale. Fig.(s) _____

X _____ Solid black shading not permitted. Fig.(s) _____

_____ Shade lines, pale, rough and blurred. Fig.(s) _____

12. NUMBERS, LETTERS, & REFERENCE CHARACTERS. 37 CFR 1.48(p)

_____ Numbers and reference characters not plain and legible.

Fig.(s) _____

_____ Figure legends are poor. Fig.(s) _____

_____ Numbers and reference characters not oriented in the same direction as the view. 37 CFR 1.84(p)(3) Fig.(s) _____

_____ English alphabet not used. 37 CFR 1.84(p)(3) Fig.(s) _____

_____ Numbers, letters and reference characters must be at least .32 cm (1/8 inch) in height. 37 CFR 1.84(p)(3) Fig.(s) _____

13. LEAD LINES. 37 CFR 1.84(q)

_____ Lead lines cross each other. Fig.(s) _____

_____ Lead lines missing. Fig.(s) _____

14. NUMBERING OF SHEETS OF DRAWINGS. 37 CFR 1.48(t)

_____ Sheets not numbered consecutively, and in Arabic numerals beginning with number 1. Fig.(s) _____

15. NUMBERING OF VIEWS. 37 CFR 1.84(u)

_____ Views not numbered consecutively, and in Arabic numerals, beginning with number 1. Fig.(s) _____

16. CORRECTIONS. 37 CFR 1.84(w)

_____ Corrections not made from PTO-948 dated _____

17. DESIGN DRAWINGS. 37 CFR 1.152

_____ Surface shading shown not appropriate. Fig.(s) _____

_____ Solid black shading not used for color contrast.

Fig.(s) _____

COMMENTS

706



UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office

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APPLICATION NUMBER	FILING/RECEIPT DATE	FIRST NAMED APPLICANT	ATTORNEY DOCKET NO./TITLE
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08/916,106 08/21/97 POHLMANN

R

STRIKER STRIKER & STENBY
360 LEXINGTON AVENUE
NEW YORK NY 10017

0262/0112

NOT ASSIGNED

MAR 12, 98

DATE MAILED:

3506

01/12/98

NOTICE TO FILE MISSING PARTS OF APPLICATION
Filing Date Granted

An Application Number and Filing Date have been assigned to this application. However, the items indicated below are missing. The required items and fees identified below must be timely submitted **ALONG WITH THE PAYMENT OF A SURCHARGE** for items 1 and 3-6 only of \$ 130 for a ☒ large entity ☐ small entity in compliance with 37 CFR 1.27. The surcharge is set forth in 37 CFR 1.16(e). Applicant is given **TWO MONTHS FROM THE DATE OF THIS NOTICE** within which to file all required items and pay any fees required above to avoid abandonment. Extensions of time may be obtained by filing a petition accompanied by the extension fee under the provisions of 37 CFR 1.136(a).

If all required items on this form are filed within the period set above, the total amount owed by applicant as a
☒ large entity ☐ small entity (verified statement filed), is \$ 130.

☐ 1. The statutory basic filing fee is:

- ☐ missing.
- ☐ insufficient.

Applicant must submit \$ _____ to complete the basic filing fee and/or file a verified small entity statement claiming such status (37 CFR 1.27).

☐ 2. Additional claim fees of \$ _____, including any multiple dependent claim fees, are required.

Applicant must either submit the additional claim fees or cancel additional claims for which fees are due.

☐ 3. The oath or declaration:

- ☐ is missing.
- ☐ does not cover the newly submitted items.
- ☐ does not identify the application to which it applies.
- ☐ does not include the city and state or foreign country of applicant's residence.

An oath or declaration in compliance with 37 CFR 1.63, including residence information and identifying the application by the above Application Number and Filing Date is required.

☒ 4. The signature(s) to the oath or declaration is/are:

- ☒ missing.
- ☐ by a person other than inventor or person qualified under 37 CFR 1.42, 1.43, or 1.47.

A properly signed oath or declaration in compliance with 37 CFR 1.63, identifying the application by the above Application Number and Filing Date, is required.

☐ 5. The signature of the following joint inventor(s) is missing from the oath or declaration:

An oath or declaration listing the names of all inventors and signed by the omitted inventor(s), identifying this application by the above Application Number and Filing Date, is required.

☐ 6. A \$ _____ processing fee is required since your check was returned without payment (37 CFR 1.21(m)).

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☐ 8. The application does not comply with the Sequence Rules.

See attached "Notice to Comply with Sequence Rules 37 CFR 1.821-1.825."

☐ 9. OTHER:

Direct the response and any questions about this notice to "Attention: Box Missing Parts."

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APPLICATION NUMBER	FILING/RECEIPT DATE	FIRST NAMED APPLICANT	ATTORNEY DOCKET NO./TITLE
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08/916,106 08/21/97 POHLMANN

026270112

STRIKER STRINER & STENBY
360 LEXINGTON AVENUE
NEW YORK, NY 10017

NOT ASSIGNED

DATE MAILED: 0506

01/1

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If all required items on this form are filed within the period set above, the total amount owed by applicant as a
☒ large entity ☐ small entity (verified statement filed), is \$ 130.

☐ 1. The statutory basic filing fee is:

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☐ 2. Additional claim fees of \$ _____, including any multiple dependent claim fees, are required.
Applicant must either submit the additional claim fees or cancel additional claims for which fees are due.

☐ 3. The oath or declaration:

- ☐ is missing.
- ☐ does not cover the newly submitted items.
- ☐ does not identify the application to which it applies.
- ☐ does not include the city and state or foreign country of applicant's residence.

An oath or declaration in compliance with 37 CFR 1.63, including residence information and identifying the application by the above Application Number and Filing Date is required.

☒ 4. The signature(s) to the oath or declaration is/are:

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See attached "Notice to Comply with Sequence Rules 37 CFR 1.821-1.825."

☐ 9. OTHER:

Direct the response and any questions about this notice to "Attention: Box Missing Parts."

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An arrangement for determining the penetration depth on putting in place supporting elements into a water bed

The invention relates to an arrangement and a method for determining the penetration depth when putting in place supporting elements into a water bed.

When placing piles or beams into a water bed, information on their loading capacity is often required. Generally for this, markings at fixed distances are placed on the beam elements to be put in place and the number of pile drives which must be made by a pile device are counted in order to achieve a certain penetration depth of the beam element. The number of pile drives gives an indication of the ground conditions and loading capacity, when taking account of the energy consumed. The known method is suitable for the putting in place of beam elements through water or on land, as well as foundation work in which the beam element and the pile device are located underwater.

In the case of underwater pile-driving, which may take place in depths of more than 1000m, with a known arrangement for determining the penetration depth, an underwater camera is employed which permits an optical control of the markings on the supporting elements. The known arrangement on the one hand has the disadvantage that underwater cameras are prone to failure and with a breakdown, lead to the costly halting of the pile-driving operation. A further disadvantage lies in the fact that for monitoring the putting in place of the beam elements, a person is required to observe a monitor, and to manually protocol the progress of penetration.

It is the object of the invention to provide an arrangement and a method for determining the penetration depth when putting in place supporting elements into a water bed, which concerns simple principles, is less prone to breakdowns and which can be automatised.

This object is achieved with a arrangement according to the invention which is characterised by a pressure sensor for measuring the water pressure and which is fastenable to the supporting element or to a device connected to the supporting element, by a device for transmitting the readings supplied by the pressure sensor and by an evaluation unit for determining the reading differences which arise during the sinking of the pressure sensor on penetration of the supporting element into the water bed.

The object with regard to the method is achieved by way of the following method steps, whilst using a pressure sensor suitable for measuring water pressure and fastened underwater to a supporting element or to a device connected to the supporting element:

- before the beginning or during the putting in place of a supporting element, a first reading of the pressure sensor is taken and is kept as a reference value;
- after consuming a certain amount of energy for the putting in place of the supporting element or after the completion of the time interval required for this, a further reading of the pressure sensor is taken and retained,
- from the difference of the preceding and further readings, the penetration depth achieved by the intermediate putting in place is calculated, preferably by multiplication of the difference by a suitable calibration factor;
- in the case that the desired penetration depth is not yet sufficient, the method steps from the second method step are repeated.

The arrangement according to the invention and the method according to the invention have the advantage that instead of a complicated constructed, highly sensitive and accident prone underwater camera, essentially only the pressure sensor at the location of the foundation work must be accomodated underwater

at a great depth. A further advantage lies in only having to fasten the pressure sensor to the supporting element or to the device connected to the supporting element, without requiring an exact adjustment as is the case with an underwater camera. Principally, the invention lies in the fact that the pressure sensor is likewise sunk corresponding to the sinking of the supporting element into the water bed, and that from the difference in water pressure in the sunk and in the non-sunk condition, a difference in height is computed.

With this it is neither necessary for the pressure sensor to be sunk with the supporting element into the water bed nor for it to be rigidly fastened to the supporting element. On the contrary, the pressure sensor may be attached at a considerable height above the supporting element, for example on the device putting in place the supporting element into the water floor. It would also be possible to fasten the pressure sensor onto a lever which on the one hand is in connection with the device and on the other hand with a fixed point, and which transmits the sinking movement of the supporting element for example into a greater sinking of the pressure sensor.

An evaluation unit, for determining the reading differences which occur as a result of the sinking of the pressure sensor on penetration of the supporting element into the water bed, is preferably accommodated above water, for example on a ship, but it may also be accommodated underwater for example directly on the pressure sensor or a diving station located underwater for observation.

From the pressure sensor the readings reach the evaluation unit via a transmission device. With this, the transmission of readings may be effected without wire, for example by way of sound signals.

In a preferred embodiment form of the arrangement according to the invention it is however provided that the pressure sensor supplies electrical signals as readings and that these signals or signals gained by conversion are transmitted to the evaluation

the occasional control by an observer is made possible.

In order to permit the use of the arrangement according to the invention in water depths of up to 2000 m which might occur, and to simultaneously ensure a measurement of the penetration depth to an accuracy of 1 cm, it is recommended that the pressure sensor is suitable for measuring absolute pressure in the order of 200 bar and has a measuring accuracy in the order of 1 mbar.

In a preferred embodiment form of the arrangement according to the invention, the signal of the pressure sensor consists of an analog electrical quantity, preferably a current which is converted via an analog to digital converter into a digital signal and is transmitted to the evaluation unit. This embodiment form is particularly recommended when the pressure sensor is located at a great water depth, for example 2000 m deep, and the evaluation unit is located on the water surface. In this case, due to the large transmission path, only a digital transmission can be considered for the transmission of the readings with the highest accuracy.

A water depth of 2000m requires a pressure sensor which can measure absolute pressures of up to 200 bar with a resolution of 1 to 2 mbar. For transmitting such a large range of measurement with the required measuring accuracy, an analog to digital converter with a digital definition of at least 18 bits would be necessary. Such analog to digital converters are complicated and expensive.

Alternatively one may consider pressure sensors which comprise an output with a frequency which is dependent on pressure or a digital serial output, thus permitting the definition required.

Commercially available and inexpensive analog to digital converters however only have a digital resolution of 12 bits. If the measuring range for the water depth is to reach from 0 to 2000 m, with a signal transmission with 12 bits a measuring accuracy of only 0,5 m to 1 m is possible, although the analog

signal of the sensor offers a considerably higher accuracy.

For solving this problem, in a further development of the invention it is provided that between the pressure sensor and the analog to digital converter there is connected an electronic subtractor and an amplifier, by which means a preselectable part measuring range may be expanded over the whole conversion range of the analog to digital converter. By way of this, the complete resolution of the analog to digital converter is available for a smaller analog part range. If for example the analog part measuring range is reduced from 2000 m to approximately 80 m, with a 12 bit analog to digital converter a resolution of 2cm may be achieved.

A further alternative is presented by the use of pressure sensors with integrated logic for a highly accurate reading acquisition and digital data transmission interface.

If the pressure sensor is fastened to pile hammer serving to pile-drive piles into the water floor and the supply lines of the pile hammer also comprises the signal lead of the pressure sensor, it is useful that a computer provided for the monitoring and control of the pile hammer also serves the acquisition, storage and evaluation of the readings of the pressure sensor. A special computer for determining the penetration depth is not then necessary. Preferably this computer also registers the number of pile drives and computes the energy sum used for this.

With the simplest embodiment form of the method according to the invention, the penetration depth is determined from the difference of the preceding reading and the further reading in that the difference is multiplied by a suitable calibration factor. In this way one generally obtains a sufficient measuring accuracy, since under ideal conditions the calibration factor in the first approximation is the same multitude for all readings. Real pressure sensors however do not display a linear behaviour, particularly at the limits of their measuring ranges. For increasing the measuring accuracy therefore, depending on the absolute size of the reading, differing calibration factors may

be employed. Particularly when using a computer for computing the differential penetration depth, this action may be carried out without a significant additional effort.

For improving the linearity and accuracy of the conversion function of pressure into depth, preferably a tidal compensation and a gravitational acceleration compensation dependent on location is carried out, as well as taking into account a depth dependent density change function of the water.

In a further development of the method according to the invention it is provided that during the measuring interval, further data is extracted and retained from the device for putting in place the supporting element, particularly data for determining the required amount of energy for putting in place the supporting element. By way of this measure, the method is improved in that not only is the simple determination of the penetration depth per se possible, but also an estimation of the resistance of the water floor to the putting in place of the supporting element into the reached penetration depth.

In a further development of the method it is provided that for each retained reading, a point in time is also registered. With this, with a later evaluation of the readings the chronological progress of the putting in place may also be represented.

The method may be further improved in that the penetration depths calculated from the readings are represented on a diagram. With this the penetration depths may be selectively plotted against time intervals, against the energy required for putting in place (number of pile drives) or also against the energy used with regard to a fixed difference in penetration depth. The representation on a diagram has the advantage that with one look one can acquire the history, progress and the status of the placing procedure, and any erroneous readings as a result of disturbances become immediately visible.

In a further development of the method, it is provided that

before the beginning of the determination of the penetration depth the reading of the pressure sensor is reduced to almost zero by way of an electronic subtractor and the residual value is amplified by a predjustable multiplication factor by way of an amplifier, wherein the size of the multiplication factor is preselected such that the amplified residual value, with the maximum expected penetration depth, does not exceed the highest analog value which can be processed by a subsequently connected analog to digital converter. The advantages of this measure lie in the improved measuring accuracy with a given limited digital resolution of the analog to digital converter. By way of the mentioned adaptation of the multiplication factor, the part measuring range employed is optimally taken advantage of.

The method can be improved even further in that the reduction of the reading of the pressure sensor by way of the subtractor is automatically effected before the beginning of the determination of the penetration depth. This measure simplifies the application of the method and avoids losing time by way of erroneous operation.

The invention may also already be realised by the use of pressure sensor, known per se and suitable for measuring water pressure, for determining the penetration depth from the pressure differences arising when putting in place supporting elements into a water bed. At the same time it is useful to apply the method described earlier.

One embodiment example of the invention is hereinafter described in more detail by way of the drawings. The figures show individually:

Fig. 1 a pile device on the sea bed with an arrangement according to the invention for determining the penetration depth;

Fig. 2 a sensor unit with a pressure sensor, subtractor, amplifier and analog to digital converter;

Fig. 3 a sensor unit with a pressure sensor and a high resolution analog to digital converter;

Fig. 4 a sensor unit with a pressure sensor and frequency exit; and

Fig. 5 a sensor unit with a pressure sensor and a digital serial interface.

In Fig. 1 there is shown a pile device with a pile hammer 1, a pile 2 and a bundle of supply lines 3. The pile hammer 1 is arranged sitting on the pile 2 underwater. The pile device is located at a large depth below the surface of the sea 4 and directly above the sea bed 5 into which the pile 2 is to be put in place. For pile-driving the pile 2, the pile hammer 1 exerts onto this a series of pile drives, wherein the pile hammer 1 together with the pile 2 sink in the direction of the arrow 6.

At the upper end of the pile hammer 1 there is fastened a pressure sensor 7 for measuring the water pressure. The pressure sensor 7 measures the water pressure corresponding to its actual depth 8 under the sea surface 4.

On sinking the pile 2 into the sea bed 5 the pressure sensor also together with the pile hammer 1 sinks, wherein the measured water pressure increases. At the beginning of the pile-driving the pressure sensor 7 is located at an initial depth 9 below the sea surface 4 at which a small water pressure is measured. The difference in depth between the initial depth 9 and the actual depth 8 corresponds to a difference in pressure which is evaluated by subtraction of the measured water pressures at the initial depth 9 and at the actual depth 8 in each case.

The pressure sensor according to Fig. 2 supplies an electrical current 11 which is proportional to the pressure and which is converted into a digital signal by way of an analog to digital converter 12 and transmitted to an evaluation unit 16. Between the pressure sensor 7 and the analog to digital converter 12, an electronic subtractor 13 and an amplifier 14 are

connected, these serving to expand a preselectable part measuring range of the pressure sensor 7 over the whole conversion range of the analog to digital converter 12. This procedure is described in more detail further below.

The current 11 supplied from the pressure sensor 7 is digitalized by the analog to digital converter 12 and is transmitted to an evaluation unit 16 located on an operating ship which is not shown, via an electrical signal lead 15 which is contained in the bundle of supply lines. The evaluation unit 16 comprises a computer which is not shown but which automatically acquires, stores and from the reading differences, constantly computes and displays the difference in depth 10 corresponding to the penetration depth of the pile 2.

Since such pile-driving is carried out in depths of up to 200 m below the surface of the sea 4, the pressure sensor 7 is suitable for measuring absolute pressures of up to 200 bar. On the other hand it has a measuring accuracy of 1 mbar so that the difference in depth 10 which corresponds to the penetration depth of the pile 2 may be calculated to within 1 to 2 cm.

The determination of the penetration depth of the pile 2 is effected in detail by way of the method described hereinafter.

Before the beginning of the pile-driving of the pile 2 the pressure sensor 7 is located at the initial depth 9. In this situation from the computer of the evaluation unit 16, a first reading of the pressure sensor 7 is taken and is stored as a reference value. The computer also controls and monitors the pile driver 1 and in particular registers the number of pile drives carried out from which, taking account of further technical details of the pile device, one can calculate the energy consumed for pile-driving the pile 2. After consuming a certain quantity of energy, i.e. after carrying out a certain number of pile drives, the computer registers a further reading of the pressure sensor 7 and also stores this. Following this, from the difference of the preceding and subsequent reading, by way of multiplication of this difference by a predetermined calibration

factor, the computer calculates the penetration depth 10 between these readings. When the desired penetration depth is reached then the method can then here be stopped.

Generally one however desires a protocol of the pile-driving procedure in the form of a diagram with a larger number of readings which for example are plotted against time or against the number of pile drives or against the penetration depth. In these cases the method steps are repeated from the second step, i.e. after the expiry of a predetermined number of pile drives a further reading is taken, stored and from the difference from the preceding reading, a further differential penetration depth is calculated which is in turn represented on the diagram. Of course the computer may also calculate the total penetration depth achieved since the first reference value.

Since the analog to digital converter 12 used in Fig. 2 only has a digital resolution of 12 bits, the analog current 11 supplied from the pressure sensor 11 may not be processed over the whole measuring range of 200 bar with the required resolution of 1 to 2 mbar. In order however to maintain a sufficient resolution over the whole measuring range, the subtractor 13 and the amplifier 14 are connected between the pressure sensor 7 and the analog to digital converter 12.

This arrangement is represented schematically in Fig. 2. By way of a voltage 20 which is constant during the determination of the penetration depth 10, the analog voltage 11 supplied by the pressure sensor 7 is reduced to almost zero before the beginning of the above mentioned method. This may be effected without further ado in that the resetting procedure is triggered by a start signal sent from the evaluation unit 16. At the same time a suitable electronic circuit may determine and after resetting, maintain the required constant voltage 20 by measurement of the momentary voltage supplied by the pressure sensor 7.

The residual value 17 remaining at the output of the subtractor 13, as has been stated, is firstly set to almost zero,

but slightly increases during the course of the pile-driving of the pile 2. In order to be able to better exploit the digital resolution of the analog to digital converter 12, the remaining residual value 17 must be amplified. This is effected in the subsequently connected amplifier 14 which effects a multiplication of the residual value 17 by an amplification factor 18. At the output of the amplifier 14 resides the amplified residual value 19 which is transmitted to the input of the analog to digital converter 12. The amplification factor 18 is preselected such that the amplified residual value 19, at the maximum expected penetration depth 10, does not exceed the analog value which can be processed by the subsequently connected analog to digital converter 12.

Due to a such an attained expansion of the part measuring range of the pressure sensor 7, despite the limited digital resolution of the analog to digital converter 12, the expanded part range is transmitted via the signal lead 15 to the evaluation unit 16 with a sufficient measuring accuracy.

With a modification of the invention represented in Fig. 3, the subtractor and amplifier are redundant since here a high resolution analog to digital converter 21 is employed which comprises a resolution of more than 12 bits.

With a further modification of the invention shown in Fig. 4, the pressure sensor 7 produces two frequency signals 23 and 24 which are digitalized in two frequency-digital transducers 25 and 26. With this, a first frequency signal 23 is dependent on the water pressure at the location of the pressure sensor 7 whilst the second frequency signal 24 is dependent on the temperature at the location of the pressure measurement and is provided for compensating temperature dependent deviations of the pressure reading.

In the evaluation unit which is not shown, the digital signals are evaluated from the frequency-digital transducers 25, 26 and the pressure at the location of the pressure sensor 7 is computed to a high accuracy. With this computation, apart from

the two frequency signals 23, 24 of the pressure sensor 7, also further coefficients for correcting the reading are taken into account.

With the further modification of the invention shown in Fig. 5, the sensor unit is equipped with a digital serial interface 22 which is connected to the output of the pressure sensor 7 whose signal it digitalizes and serially transmits to the evaluation unit 16.

List of reference numerals

- 1 pile hammer
- 2 pile
- 3 supply lines
- 4 surface of the sea
- 5 sea bed
- 6 direction
- 7 pressure sensor
- 8 actual depth
- 9 initial depth
- 10 difference of depth/penetration depth
- 11 current
- 12 analog to digital converter
- 13 subtractor
- 14 amplifier
- 15 signal lead
- 16 evaluation unit
- 17 residual value
- 18 amplification factor
- 19 amplified residual value
- 20 constant voltage
- 21 analog to digital converter
- 22 digital serial interface
- 23 first frequency signal
- 24 second frequency signal
- 25 first frequency-digital transducer
- 26 second frequency-digital transducer

PATENT CLAIMS

1. An arrangement for determining the penetration depth when putting in place supporting elements into a water bed, characterised by a pressure sensor (7) for measuring the water pressure which is fastenable to the supporting element (2) or to a device (1) connected to the supporting element (2), by a device (12 to 15) for transmitting the readings (11) supplied by the pressure sensor (7) and by an evaluation unit (16) for determining the reading differences which occur during the sinking of the pressure sensor (7) on penetration of the supporting element (2) into the water bed (5).
2. An arrangement according to claim 1, characterised in that the pressure sensor (7) supplies electrical signals (11) as readings and that these signals (11) or signals gained by conversion are transmitted to the evaluation unit (16) via an electrical signal lead (15).
3. An arrangement according to claim 1 or 2, characterised in that the evaluation unit (16) comprises a computer which automatically acquires and stores the readings.
4. An arrangement according to claim 3, characterised in that the computer constantly computes and displays the penetration depth (10) from the differences in readings.
5. An arrangement according to one of claims 1 to 4, characterised in that the pressure sensor (7) is suitable for measuring absolute pressure in the order of 200 bar and has a measuring accuracy in the order of 1 mbar.
6. An arrangement according to one of claims 2 to 5, characterised in that the signal of the pressure sensor (7) consists of an analog electrical quantity, preferably a current (11) which is converted via an analog to digital converter (12)

into a digital signal and is transmitted to the evaluation unit (16).

7. An arrangement according to claim 6, characterised in that between the pressure sensor (7) and the analog to digital converter (12) there is connected an electronic subtractor (13) and an amplifier (14), by which means a preselectable part measuring range may be expanded over the whole conversion range of the analog to digital converter (12).

8. An arrangement according to one of claims 2 to 5, characterised in that the signal of the pressure sensor (7) is transmitted to the evaluation unit (16) via a digital serial interface (22).

9. An arrangement according to one of claims 2 to 5, characterised in that the pressure sensor (7) supplies a pressure dependent frequency signal (23) and a temperature dependent frequency signal (24) and that the frequency signals (23, 24) are digitalized via two frequency-digital transducers (25, 26) and the two digital signals are transmitted to the evaluation unit (16).

10. An arrangement according to one of claims 2 to 7, characterised in that the pressure sensor (7) is fastened to pile hammer (1) serving to pile-drive piles (2) into the water floor (5) and that the supply lines (3) of the pile hammer (1) also comprises the signal lead (15) of the pressure sensor (7).

11. An arrangement according to claim 10, characterised in that a computer provided for the monitoring and control of the pile hammer (1) also serves the acquisition, storage and evaluation of the readings of the pressure sensor (7).

12. An arrangement according to claim 11, characterised in that the computer also registers the number of pile drives and computes the energy sum used for this.

13. A method for determining the penetration depth when putting

in place supporting elements (2) into a water bed (5), using a pressure sensor (7) suitable for measuring water pressure and fastened underwater to a supporting element (2) or to a device connected to the supporting element (2), characterised by the subsequent method steps:

- before the beginning or during the putting in place of a supporting element, a first reading of the pressure sensor is taken and is kept as a reference value;
- after consuming a certain amount of energy for the putting in place of the supporting element (2) or after the completion of the time interval required for this, a further reading of the pressure sensor (7) is taken and retained,
- from the difference of the preceding and further readings, the penetration depth (10) achieved by the intermediate putting in place is calculated, preferably by multiplication of the difference by a suitable calibration factor;
- in the case that the desired penetration depth is not yet sufficient, the method steps are repeated from the second method step.

14. A method according to claim 13, characterised in that for improving the linearity and accuracy of the conversion function of pressure into distance, a tidal compensation and/or a gravitational acceleration compensation and/or a depth dependent density change of the water are taken into account.

15. A method according to claim 13 or 14, characterised in that during the measuring interval, further data is extracted and retained from the device (1) for putting in place the supporting element (2), particularly data for determining the required amount of energy for putting in place the supporting element (2).

16. A method according to one of claims 13 to 15, characterised in that for each retained reading, a point in time is also registered.

17. A method according to one of claims 13 to 16, characterised in that the penetration depths (10) calculated from the readings are represented on a diagram.

18. A method according to one of claims 13 to 17, characterised in that before the beginning of the determination of the penetration depth (10) the reading (11) of the pressure sensor (7) is reduced to almost zero by way of an electronic subtractor (13) and the residual value (17) is amplified by a predjustable multiplication factor (18) by way of an amplifier (14), wherein the size of the multiplication factor (18) is preselected such that the amplified residual value (19), with the maximum expected penetration depth (10), does not exceed the highest analog value which can be processed by a subsequently connected analog to digital converter (12).

19. A method according to claim 18, characterised in that the reduction of the reading of the pressure sensor (7) by way of the subtractor (13) is automatically effected before the beginning of the determination of the penetration depth (10).

20. A method according to one of claims 13 to 17, characterised in that the reading (11) of the pressure sensor (7) is digitalized by way of a highly accurate analog to digital converter (21) with a digital resolution of more than 12 bits.

21. A method according to one of claims 13 to 17, characterised in that the pressure sensor (7) is provided with a digital serial interface (22) which has a resolution of up to 0.005 ppm over a range of 3000 PSI.

22. A method according to one of claims 13 to 17, characterised in that the reading (11) of the pressure sensor (7) is transmitted by way of a first frequency signal (23) and the reading of a temperature sensor is transmitted by way of a second frequency signal (24).

23. The use of a pressure sensor (7) suitable for measuring water pressure for determining the penetration depth (10) from

the pressure differences arising when putting in place supporting elements (2) into a water bed (5), particularly by way of a method according to one of claims 13 to 22.

Abstract

An arrangement for determining the penetration depth on putting in place supporting elements into a water bed

With an arrangement for determining the penetration depth (10) when putting in place supporting elements (2) into a water bed (5), according to the invention, there is provided a pressure sensor (7) for measuring the water pressure which is fastenable to the supporting element (2) or to a device (1) connected to the supporting element (2). The readings (11) supplied by the pressure sensor (7) are transmitted via a signal lead (15) to an evaluation unit (16) which determines the penetration depth (10) of the supporting element (2) from the reading differences which occur during the sinking of the pressure sensor (7) on penetration of the supporting element (2) into the water bed (5).

COMBINED DECLARATION AND
POWER OF ATTORNEY

ATTORNEY DOCKET NO.

As a below-named inventor, I hereby declare that:

Reink POHLMANN

My residence, post office address and citizenship are as stated below next to my name,

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention.

AN ARRANGEMENT FOR DETERMINING THE PENETRATION DEPTH ON
PUTTING IN PLACE SUPPORTING ELEMENTS INTO A WATER BED

the specification of which:

(Check one) ☒ is attached hereto.

___ was filed on _____ as

Application Serial No. _____ and

was amended on _____
(if applicable)

was amended through _____
(if applicable)

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to the examination of this application in accordance with Title 37, Code of Federal Regulations, Section 1.56.

I hereby claim foreign priority benefits under Title 35, United States Code, Section § 119, of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed:

Prior Foreign Application(s):

Priority Claimed

<u>196 33 803.4</u>	<u>GERMANY</u>	<u>August 22, 1996</u>	<u>X</u>	
Priority Number	Country	Date filed (Priority Date)	Yes	No
<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>
Priority Number	Country	Date filed (Priority Date)	Yes	No
<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>
Priority Number	Country	Date filed (Priority Date)	Yes	No

I hereby claim the benefit under Title 35, United States Code, Section 120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, Section 112, I acknowledge the duty to disclose material information as defined in Title 35, Code of Federal Regulations, Section 1.56(a), which occurred between the filing date of the prior application and the national or PCT International filing date of this application:

(Application Serial No.)	(Filing Date)	(Status - Patented, pending, abandoned)
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(Application Serial No.)	(Filing Date)	(Status - Patented, pending, abandoned)
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(Application Serial No.)	(Filing Date)	(Status - Patented, pending, abandoned)
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I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that those statements were made with the knowledge that wilful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such wilful false statements may jeopardize the validity of the application or any patent issued thereon.

The undersigned hereby authorizes **Michael J. Striker** and the firm of **Striker, Striker & Stenby**, to accept and follow instructions from:

DR. VONNEMANN & PARTNER

as to any action to be taken in the Patent and Trademark Office regarding this application without direct communication between Michael J. Striker, the firm of Striker, Striker & Stenby, and the undersigned. In the event of a change in the persons from whom instructions may be taken, Michael J. Striker and the firm of Striker, Striker & Stenby will be so notified by the undersigned.


I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith:

POWER OF ATTORNEY: Michael J. Striker, Registration No. 27233

Address all telephone calls to: Michael J. Striker

Telephone number: (212) 687 - 5068

Address all correspondence to: Striker, Striker & Stenby
360 Lexington Avenue
New York, New York 10017
U.S.A.

FULL NAME OF SOLE OR FIRST INVENTOR: Reink POHLMANN	INVENTOR'S SIGNATURE: 	DATE: 08. SEP. 94
RESIDENCE AND FULL POSTAL ADDRESS: Strand Allee 42, D-23669 Timmendorfer Strand GERMANY		CITIZENSHIP: German

PATENTS ONLY

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To the Honorable Commissioner of Patents and Trademarks: Please record the attached original documents or copy thereof.

1. Name of conveying party(ies):

Reink POHLMANN

2. Name and address of receiving party(ies):

Name: **MENK GmbH**

Address: **WERNER-VON-SIEMENS STRASSE 2**

Additional names(s) of conveying party(ies) attached? ☐ Yes ☒ No

3. Nature of conveyance:

☒ Assignment

☐ Merger

☐ Security Agreement

☐ Change of Name

☐ Other

City: **ELLERAU**

State/Prov.: _____

Country: **GERMANY**

ZIP: **D-25479**

Execution Date: **SEPTEMBER 8, 1997**

Additional name(s) & address(es) attached? ☐ Yes ☒ No

4. Application number(s) or registration numbers(s):

If this document is being filed together with a new application, the execution date of the application is: _____

Patent Application No.

Filing date

B. Patent No.(s)

08/916,106

08/21/97

Additional numbers attached? ☐ Yes ☒ No

5. Name and address of party to whom correspondence concerning document should be mailed:

Name: **MICHAEL J. STRIKER**

Registration No. **27233**

Address: **360 LEXINGTON AVENUE**

City: **NEW YORK**

State/Prov.: **N.Y.**

Country: **U.S.A.**

ZIP: **10017**

6. Total number of applications and patents involved: **1**

7. Total fee (37 CFR 3.41):.....\$ **40.00**

☒ Enclosed

☐ Authorized to be charged to deposit account

8. Deposit account number:

19-4675

(Attach duplicate copy of this page if paying by deposit account)

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9. Statement and signature.

To the best of my knowledge and belief, the foregoing information is true and correct and any attached copy is a true copy of the original document.

MICHAEL J. STRIKER

JANUARY 23, 1998

Name of Person Signing

Signature

Date

Total number of pages including cover sheet, attachments, and document:

2

ASSIGNMENT

In consideration of value received, I, having a residence and post office address as stated below next to my name, the sole inventor (if only one name is listed below), or a joint inventor (if plural inventors are listed below), of an invention described in an application for a United States Patent entitled:

AN ARRANGEMENT FOR DETERMINING THE PENETRATION DEPTH ON
PUTTING IN PLACE SUPPORTING ELEMENTS INTO A WATER BED

Executed by us on Sep. 8, 1997, do hereby:

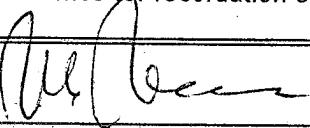
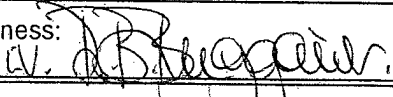
Sell and assign to MENCK GmbH

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its successors, assigns or nominees, hereinafter referred to as "Assignee", my entire right, title and interest in and to said invention as disclosed, shown and described in said application for a United States Patent;

and in and to all applications for patent(s) for said invention, in all countries of the world, including all divisions, reissues, continuations, substitutions and extensions thereof and all rights arising under or pursuant to any and all international agreements, treaties or laws relating to the protection of industrial property, including rights of priority, resulting from the filing of any of said applications; and I authorize and request any official whose duty it is to issue patents, to issue any patent on said invention or resulting therefrom to said Assignee, and I agree that on request and without further consideration, but at the expense of said Assignee, I will communicate to said Assignee or its representative all facts known to me respecting said invention and testify in any legal proceeding, sign all lawful papers, execute all divisional, continuing, reissue, or other applications, make all rightful oaths and declarations, and generally do everything possible to aid said Assignee to obtain and enforce proper patent protection for said invention in all countries.

The undersigned hereby grant(s) the firm of STRIKER, STRIKER & STENBY the power to insert on this assignment any further identification or modification which may be necessary or desirable in order to comply with the rules of the United States Patent and Trademark Office for recordation of this document.

Signature: 	Date: <u>08. SEP. 97</u>	Residence and Full Postal Address: Strand Allee 42 D-23669 Timmendorfer Strand GERMANY
Name: Reink POHLMANN	Witness: 	

Dr. B. Bruggen, MENCK GmbH

UNITED STATES PATENT AND TRADEMARK OFFICE

Examiner:

Art Unit:

Applicant(s): POHLMANN, R.

For: AN ARRANGEMENT FOR DETERMINING
THE PENETRATION DEPTH ON...

August 21, 1997

Hon. Commissioner of Patents
and Trademarks,
Washington, D.C. 20231

Sir:

The subject application is being filed pursuant to the provisions of Patent Rule Section 1.53 without the signature of the inventor. The undersigned states that he is authorized to file this application on behalf of the inventor. A fully executed Declaration will be submitted shortly.

Respectfully,

Michael J. Striker
Attorney for Applicant(s)
Reg. No. 27233

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

RE:

Application of: POHLMANN, R.

For: AN ARRANGEMENT FOR DETERMINING THE
PENETRATION DEPTH ON PUTTING IN...

August 21, 1997

Hon. Commissioner of
Patents & Trademarks
Washington, D.C. 20231

Please accept for filing as a new U.S. patent application the following documents which are submitted herewith:

- | | |
|---|---|
| 1. <u>X</u> Exp. Mail Cert. | 8. <u>X</u> Priority Request |
| 2. <u>X</u> Specification and Claims | 9. <u>X</u> Certified Copies |
| 3. <u> </u> Executed Declaration | 10. <u>X</u> Information Disclosure
Statement & PTO 1449 |
| 4. <u> </u> Assignment & Recordation
Form | 11. <u>X</u> Foreign Search Report
with translation |
| 5. <u> </u> Small Entity Statement | 12. <u>X</u> Simultaneous Amendment |
| 6. <u>3</u> Sheet(s) of Drawings | 13. <u>X</u> Filing Fee |
| 7. <u>X</u> Letter re filing without
signature + copy of
unsigned Declaration | 14. <u> </u> Other: <u> </u> |

Authorization is given to debit the account of the undersigned 19-4675 with respect to any missing or insufficient fee.

Express Mail Number: EH949843103US

Date of Deposit: August 21, 1997

I hereby certify that this paper and the documents referred to herein are being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 CFR 1.10 on the date indicated above and is addressed to the Assistant Commissioner for Patents, Washington, D.C. 20231.

Respectfully submitted,

Michael J. Striker
360 Lexington Avenue
New York, New York 10017
(212) 687 5068
Registration No. 27233

UNITED STATES PATENT OFFICE

In re: Application of : POHLMANN, R.
 Filed : Simultaneously
 For : AN ARRANGEMENT FOR DETERMINING
 THE PENETRATION DEPTH ON...

August 21, 1997

Hon. Commissioner of
Patents and Trademarks
Washington, D.C. 20231

Sir:

Attached hereto are the filing fee and the following
documents re the above application:

1. X Original Application
2. X Certified Copy
3. 3 Sheets of Drawings
4. Assignment

Breakdown of filing fee:

Basic Fee for the above application.....	\$770.00
Total Number of Claims	
<u> 26 </u> minus 20 times \$22.00.....	\$132.00
Independent Claims	
<u> 2 </u> minus 3 times \$80.00.....	\$ 0.00
TOTAL FILING FEE.....	\$902.00

Should no filing fee be submitted or the filing fee
submitted herewith be insufficient, then it is respectfully
requested that such fee be charged to the account of the
undersigned (19-4675).

Respectfully submitted,

Michael J. Striker
Attorney for Applicant(S)
Reg No. 27233

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

RE:

Application of: POHLMANN, R.

For: AN ARRANGEMENT FOR DETERMINING THE
PENETRATION DEPTH ON PUTTING IN...

August 21, 1997

Hon. Commissioner of
Patents & Trademarks
Washington, D.C. 20231

Please accept for filing as a new U.S. patent application the following documents which are submitted herewith:

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| 1. <u>X</u> Exp. Mail Cert. | 8. <u>X</u> Priority Request |
| 2. <u>X</u> Specification and Claims | 9. <u>X</u> Certified Copies |
| 3. <u> </u> Executed Declaration | 10. <u>X</u> Information Disclosure
Statement & PTO 1449 |
| 4. <u> </u> Assignment & Recordation
Form | 11. <u>X</u> Foreign Search Report
with translation |
| 5. <u> </u> Small Entity Statement | 12. <u>X</u> Simultaneous Amendment |
| 6. <u>3</u> Sheet(s) of Drawings | 13. <u>X</u> Filing Fee |
| 7. <u>X</u> Letter re filing without
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unsigned Declaration | 14. <u> </u> Other: <u> </u> |

Authorization is given to debit the account of the undersigned 19-4675 with respect to any missing or insufficient fee.

Express Mail Number: EH949843103US

Date of Deposit: August 21, 1997

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Respectfully submitted,

Michael J. Striker
360 Lexington Avenue
New York, New York 10017
(212) 687 5068
Registration No. 27233

UNITED STATES PATENT OFFICE

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August 21, 1997

Hon. Commissioner of
Patents and Trademarks
Washington, D.C. 20231

Sir:

Attached hereto are the filing fee and the following documents re the above application:

1. X Original Application
2. X Certified Copy
3. 3 Sheets of Drawings
4. Assignment

Breakdown of filing fee:

Basic Fee for the above application.....\$770.00

Total Number of Claims

26 minus 20 times \$22.00.....\$132.00

Independent Claims

2 minus 3 times \$80.00.....\$ 0.00

TOTAL FILING FEE.....\$902.00

Should no filing fee be submitted or the filing fee submitted herewith be insufficient, then it is respectfully requested that such fee be charged to the account of the undersigned (19-4675).

Respectfully submitted,

Michael J. Striker
Attorney for Applicant(S)
Reg No. 27233

An arrangement for determining the penetration depth on putting in place supporting elements into a water bed

The invention relates to an arrangement and a method for determining the penetration depth when putting in place supporting elements into a water bed.

When placing piles or beams into a water bed, information on their loading capacity is often required. Generally for this, markings at fixed distances are placed on the beam elements to be put in place and the number of pile drives which must be made by a pile device are counted in order to achieve a certain penetration depth of the beam element. The number of pile drives gives an indication of the ground conditions and loading capacity, when taking account of the energy consumed. The known method is suitable for the putting in place of beam elements through water or on land, as well as foundation work in which the beam element and the pile device are located underwater.

In the case of underwater pile-driving, which may take place in depths of more than 1000m, with a known arrangement for determining the penetration depth, an underwater camera is employed which permits an optical control of the markings on the supporting elements. The known arrangement on the one hand has the disadvantage that underwater cameras are prone to failure and with a breakdown, lead to the costly halting of the pile-driving operation. A further disadvantage lies in the fact that for monitoring the putting in place of the beam elements, a person is required to observe a monitor, and to manually protocol the progress of penetration.

It is the object of the invention to provide an arrangement and a method for determining the penetration depth when putting in place supporting elements into a water bed, which concerns simple principles, is less prone to breakdowns and which can be automatised.

This object is achieved with a arrangement according to the invention which is characterised by a pressure sensor for measuring the water pressure and which is fastenable to the supporting element or to a device connected to the supporting element, by a device for transmitting the readings supplied by the pressure sensor and by an evaluation unit for determining the reading differences which arise during the sinking of the pressure sensor on penetration of the supporting element into the water bed.

The object with regard to the method is achieved by way of the following method steps, whilst using a pressure sensor suitable for measuring water pressure and fastened underwater to a supporting element or to a device connected to the supporting element:

- before the beginning or during the putting in place of a supporting element, a first reading of the pressure sensor is taken and is kept as a reference value;
- after consuming a certain amount of energy for the putting in place of the supporting element or after the completion of the time interval required for this, a further reading of the pressure sensor is taken and retained,
- from the difference of the preceding and further readings, the penetration depth achieved by the intermediate putting in place is calculated, preferably by multiplication of the difference by a suitable calibration factor;
- in the case that the desired penetration depth is not yet sufficient, the method steps from the second method step are repeated.

The arrangement according to the invention and the method according to the invention have the advantage that instead of a complicated constructed, highly sensitive and accident prone underwater camera, essentially only the pressure sensor at the location of the foundation work must be accomodated underwater

at a great depth. A further advantage lies in only having to fasten the pressure sensor to the supporting element or to the device connected to the supporting element, without requiring an exact adjustment as is the case with an underwater camera. Principally, the invention lies in the fact that the pressure sensor is likewise sunk corresponding to the sinking of the supporting element into the water bed, and that from the difference in water pressure in the sunk and in the non-sunk condition, a difference in height is computed.

With this it is neither necessary for the pressure sensor to be sunk with the supporting element into the water bed nor for it to be rigidly fastened to the supporting element. On the contrary, the pressure sensor may be attached at a considerable height above the supporting element, for example on the device putting in place the supporting element into the water floor. It would also be possible to fasten the pressure sensor onto a lever which on the one hand is in connection with the device and on the other hand with a fixed point, and which transmits the sinking movement of the supporting element for example into a greater sinking of the pressure sensor.

An evaluation unit, for determining the reading differences which occur as a result of the sinking of the pressure sensor on penetration of the supporting element into the water bed, is preferably accommodated above water, for example on a ship, but it may also be accommodated underwater for example directly on the pressure sensor or a diving station located underwater for observation.

From the pressure sensor the readings reach the evaluation unit via a transmission device. With this, the transmission of readings may be effected without wire, for example by way of sound signals.

In a preferred embodiment form of the arrangement according to the invention it is however provided that the pressure sensor supplies electrical signals as readings and that these signals or signals gained by conversion are transmitted to the evaluation

the occasional control by an observer is made possible.

In order to permit the use of the arrangement according to the invention in water depths of up to 2000 m which might occur, and to simultaneously ensure a measurement of the penetration depth to an accuracy of 1 cm, it is recommended that the pressure sensor is suitable for measuring absolute pressure in the order of 200 bar and has a measuring accuracy in the order of 1 mbar.

In a preferred embodiment form of the arrangement according to the invention, the signal of the pressure sensor consists of an analog electrical quantity, preferably a current which is converted via an analog to digital converter into a digital signal and is transmitted to the evaluation unit. This embodiment form is particularly recommended when the pressure sensor is located at a great water depth, for example 2000 m deep, and the evaluation unit is located on the water surface. In this case, due to the large transmission path, only a digital transmission can be considered for the transmission of the readings with the highest accuracy.

A water depth of 2000m requires a pressure sensor which can measure absolute pressures of up to 200 bar with a resolution of 1 to 2 mbar. For transmitting such a large range of measurement with the required measuring accuracy, an analog to digital converter with a digital definition of at least 18 bits would be necessary. Such analog to digital converters are complicated and expensive.

Alternatively one may consider pressure sensors which comprise an output with a frequency which is dependent on pressure or a digital serial output, thus permitting the definition required.

Commercially available and inexpensive analog to digital converters however only have a digital resolution of 12 bits. If the measuring range for the water depth is to reach from 0 to 2000 m, with a signal transmission with 12 bits a measuring accuracy of only 0,5 m to 1 m is possible, although the analog

signal of the sensor offers a considerably higher accuracy.

For solving this problem, in a further development of the invention it is provided that between the pressure sensor and the analog to digital converter there is connected an electronic subtractor and an amplifier, by which means a preselectable part measuring range may be expanded over the whole conversion range of the analog to digital converter. By way of this, the complete resolution of the analog to digital converter is available for a smaller analog part range. If for example the analog part measuring range is reduced from 2000 m to approximately 80 m, with a 12 bit analog to digital converter a resolution of 2cm may be achieved.

A further alternative is presented by the use of pressure sensors with integrated logic for a highly accurate reading acquisition and digital data transmission interface.

If the pressure sensor is fastened to pile hammer serving to pile-drive piles into the water floor and the supply lines of the pile hammer also comprises the signal lead of the pressure sensor, it is useful that a computer provided for the monitoring and control of the pile hammer also serves the acquisition, storage and evaluation of the readings of the pressure sensor. A special computer for determining the penetration depth is not then necessary. Preferably this computer also registers the number of pile drives and computes the energy sum used for this.

With the simplest embodiment form of the method according to the invention, the penetration depth is determined from the difference of the preceding reading and the further reading in that the difference is multiplied by a suitable calibration factor. In this way one generally obtains a sufficient measuring accuracy, since under ideal conditions the calibration factor in the first approximation is the same multitude for all readings. Real pressure sensors however do not display a linear behaviour, particularly at the limits of their measuring ranges. For increasing the measuring accuracy therefore, depending on the absolute size of the reading, differing calibration factors may

be employed. Particularly when using a computer for computing the differential penetration depth, this action may be carried out without a significant additional effort.

For improving the linearity and accuracy of the conversion function of pressure into depth, preferably a tidal compensation and a gravitational acceleration compensation dependent on location is carried out, as well as taking into account a depth dependent density change function of the water.

In a further development of the method according to the invention it is provided that during the measuring interval, further data is extracted and retained from the device for putting in place the supporting element, particularly data for determining the required amount of energy for putting in place the supporting element. By way of this measure, the method is improved in that not only is the simple determination of the penetration depth per se possible, but also an estimation of the resistance of the water floor to the putting in place of the supporting element into the reached penetration depth.

In a further development of the method it is provided that for each retained reading, a point in time is also registered. With this, with a later evaluation of the readings the chronological progress of the putting in place may also be represented.

The method may be further improved in that the penetration depths calculated from the readings are represented on a diagram. With this the penetration depths may be selectively plotted against time intervals, against the energy required for putting in place (number of pile drives) or also against the energy used with regard to a fixed difference in penetration depth. The representation on a diagram has the advantage that with one look one can acquire the history, progress and the status of the placing procedure, and any erroneous readings as a result of disturbances become immediately visible.

In a further development of the method, it is provided that

before the beginning of the determination of the penetration depth the reading of the pressure sensor is reduced to almost zero by way of an electronic subtractor and the residual value is amplified by a predjustable multiplication factor by way of an amplifier, wherein the size of the multiplication factor is preselected such that the amplified residual value, with the maximum expected penetration depth, does not exceed the highest analog value which can be processed by a subsequently connected analog to digital converter. The advantages of this measure lie in the improved measuring accuracy with a given limited digital resolution of the analog to digital converter. By way of the mentioned adaptation of the multiplication factor, the part measuring range employed is optimally taken advantage of.

The method can be improved even further in that the reduction of the reading of the pressure sensor by way of the subtractor is automatically effected before the beginning of the determination of the penetration depth. This measure simplifies the application of the method and avoids losing time by way of erroneous operation.

The invention may also already be realised by the use of pressure sensor, known per se and suitable for measuring water pressure, for determining the penetration depth from the pressure differences arising when putting in place supporting elements into a water bed. At the same time it is useful to apply the method described earlier.

One embodiment example of the invention is hereinafter described in more detail by way of the drawings. The figures show individually:

Fig. 1 a pile device on the sea bed with an arrangement according to the invention for determining the penetration depth;

Fig. 2 a sensor unit with a pressure sensor, subtractor, amplifier and analog to digital converter;

- Fig. 3 a sensor unit with a pressure sensor and a high resolution analog to digital converter;
- Fig. 4 a sensor unit with a pressure sensor and frequency exit; and
- Fig. 5 a sensor unit with a pressure sensor and a digital serial interface.

In Fig. 1 there is shown a pile device with a pile hammer 1, a pile 2 and a bundle of supply lines 3. The pile hammer 1 is arranged sitting on the pile 2 underwater. The pile device is located at a large depth below the surface of the sea 4 and directly above the sea bed 5 into which the pile 2 is to be put in place. For pile-driving the pile 2, the pile hammer 1 exerts onto this a series of pile drives, wherein the pile hammer 1 together with the pile 2 sink in the direction of the arrow 6.

At the upper end of the pile hammer 1 there is fastened a pressure sensor 7 for measuring the water pressure. The pressure sensor 7 measures the water pressure corresponding to its actual depth 8 under the sea surface 4.

On sinking the pile 2 into the sea bed 5 the pressure sensor also together with the pile hammer 1 sinks, wherein the measured water pressure increases. At the beginning of the pile-driving the pressure sensor 7 is located at an initial depth 9 below the sea surface 4 at which a small water pressure is measured. The difference in depth between the initial depth 9 and the actual depth 8 corresponds to a difference in pressure which is evaluated by subtraction of the measured water pressures at the initial depth 9 and at the actual depth 8 in each case.

The pressure sensor according to Fig. 2 supplies an electrical current 11 which is proportional to the pressure and which is converted into a digital signal by way of an analog to digital converter 12 and transmitted to an evaluation unit 16. Between the pressure sensor 7 and the analog to digital converter 12, an electronic subtractor 13 and an amplifier 14 are

connected, these serving to expand a preselectable part measuring range of the pressure sensor 7 over the whole conversion range of the analog to digital converter 12. This procedure is described in more detail further below.

The current 11 supplied from the pressure sensor 7 is digitalized by the analog to digital converter 12 and is transmitted to an evaluation unit 16 located on an operating ship which is not shown, via an electrical signal lead 15 which is contained in the bundle of supply lines. The evaluation unit 16 comprises a computer which is not shown but which automatically acquires, stores and from the reading differences, constantly computes and displays the difference in depth 10 corresponding to the penetration depth of the pile 2.

Since such pile-driving is carried out in depths of up to 200 m below the surface of the sea 4, the pressure sensor 7 is suitable for measuring absolute pressures of up to 200 bar. On the other hand it has a measuring accuracy of 1 mbar so that the difference in depth 10 which corresponds to the penetration depth of the pile 2 may be calculated to within 1 to 2 cm.

The determination of the penetration depth of the pile 2 is effected in detail by way of the method described hereinafter.

Before the beginning of the pile-driving of the pile 2 the pressure sensor 7 is located at the initial depth 9. In this situation from the computer of the evaluation unit 16, a first reading of the pressure sensor 7 is taken and is stored as a reference value. The computer also controls and monitors the pile driver 1 and in particular registers the number of pile drives carried out from which, taking account of further technical details of the pile device, one can calculate the energy consumed for pile-driving the pile 2. After consuming a certain quantity of energy, i.e. after carrying out a certain number of pile drives, the computer registers a further reading of the pressure sensor 7 and also stores this. Following this, from the difference of the preceding and subsequent reading, by way of multiplication of this difference by a predetermined calibration

factor, the computer calculates the penetration depth 10 between these readings. When the desired penetration depth is reached then the method can then here be stopped.

Generally one however desires a protocol of the pile-driving procedure in the form of a diagram with a larger number of readings which for example are plotted against time or against the number of pile drives or against the penetration depth. In these cases the method steps are repeated from the second step, i.e. after the expiry of a predetermined number of pile drives a further reading is taken, stored and from the difference from the preceding reading, a further differential penetration depth is calculated which is in turn represented on the diagram. Of course the computer may also calculate the total penetration depth achieved since the first reference value.

Since the analog to digital converter 12 used in Fig. 2 only has a digital resolution of 12 bits, the analog current 11 supplied from the pressure sensor 11 may not be processed over the whole measuring range of 200 bar with the required resolution of 1 to 2 mbar. In order however to maintain a sufficient resolution over the whole measuring range, the subtractor 13 and the amplifier 14 are connected between the pressure sensor 7 and the analog to digital converter 12.

This arrangement is represented schematically in Fig. 2. By way of a voltage 20 which is constant during the determination of the penetration depth 10, the analog voltage 11 supplied by the pressure sensor 7 is reduced to almost zero before the beginning of the above mentioned method. This may be effected without further ado in that the resetting procedure is triggered by a start signal sent from the evaluation unit 16. At the same time a suitable electronic circuit may determine and after resetting, maintain the required constant voltage 20 by measurement of the momentary voltage supplied by the pressure sensor 7.

The residual value 17 remaining at the output of the subtractor 13, as has been stated, is firstly set to almost zero,

but slightly increases during the course of the pile-driving of the pile 2. In order to be able to better exploit the digital resolution of the analog to digital converter 12, the remaining residual value 17 must be amplified. This is effected in the subsequently connected amplifier 14 which effects a multiplication of the residual value 17 by an amplification factor 18. At the output of the amplifier 14 resides the amplified residual value 19 which is transmitted to the input of the analog to digital converter 12. The amplification factor 18 is preselected such that the amplified residual value 19, at the maximum expected penetration depth 10, does not exceed the analog value which can be processed by the subsequently connected analog to digital converter 12.

Due to a such an attained expansion of the part measuring range of the pressure sensor 7, despite the limited digital resolution of the analog to digital converter 12, the expanded part range is transmitted via the signal lead 15 to the evaluation unit 16 with a sufficient measuring accuracy.

With a modification of the invention represented in Fig. 3, the subtractor and amplifier are redundant since here a high resolution analog to digital converter 21 is employed which comprises a resolution of more than 12 bits.

With a further modification of the invention shown in Fig. 4, the pressure sensor 7 produces two frequency signals 23 and 24 which are digitalized in two frequency-digital transducers 25 and 26. With this, a first frequency signal 23 is dependent on the water pressure at the location of the pressure sensor 7 whilst the second frequency signal 24 is dependent on the temperature at the location of the pressure measurement and is provided for compensating temperature dependent deviations of the pressure reading.

In the evaluation unit which is not shown, the digital signals are evaluated from the frequency-digital transducers 25, 26 and the pressure at the location of the pressure sensor 7 is computed to a high accuracy. With this computation, apart from

the two frequency signals 23, 24 of the pressure sensor 7, also further coefficients for correcting the reading are taken into account.

With the further modification of the invention shown in Fig. 5, the sensor unit is equipped with a digital serial interface 22 which is connected to the output of the pressure sensor 7 whose signal it digitalizes and serially transmits to the evaluation unit 16.

List of reference numerals

- 1 pile hammer
- 2 pile
- 3 supply lines
- 4 surface of the sea
- 5 sea bed
- 6 direction
- 7 pressure sensor
- 8 actual depth
- 9 initial depth
- 10 difference of depth/penetration depth
- 11 current
- 12 analog to digital converter
- 13 subtractor
- 14 amplifier
- 15 signal lead
- 16 evaluation unit
- 17 residual value
- 18 amplification factor
- 19 amplified residual value
- 20 constant voltage
- 21 analog to digital converter
- 22 digital serial interface
- 23 first frequency signal
- 24 second frequency signal
- 25 first frequency-digital transducer
- 26 second frequency-digital transducer

PATENT CLAIMS

1. An arrangement for determining the penetration depth when putting in place supporting elements into a water bed, characterised by a pressure sensor (7) for measuring the water pressure which is fastenable to the supporting element (2) or to a device (1) connected to the supporting element (2), by a device (12 to 15) for transmitting the readings (11) supplied by the pressure sensor (7) and by an evaluation unit (16) for determining the reading differences which occur during the sinking of the pressure sensor (7) on penetration of the supporting element (2) into the water bed (5).
2. An arrangement according to claim 1, characterised in that the pressure sensor (7) supplies electrical signals (11) as readings and that these signals (11) or signals gained by conversion are transmitted to the evaluation unit (16) via an electrical signal lead (15).
3. An arrangement according to claim 1 or 2, characterised in that the evaluation unit (16) comprises a computer which automatically acquires and stores the readings.
4. An arrangement according to claim 3, characterised in that the computer constantly computes and displays the penetration depth (10) from the differences in readings.
5. An arrangement according to one of claims 1 to 4, characterised in that the pressure sensor (7) is suitable for measuring absolute pressure in the order of 200 bar and has a measuring accuracy in the order of 1 mbar.
6. An arrangement according to one of claims 2 to 5, characterised in that the signal of the pressure sensor (7) consists of an analog electrical quantity, preferably a current (11) which is converted via an analog to digital converter (12)

into a digital signal and is transmitted to the evaluation unit (16).

7. An arrangement according to claim 6, characterised in that between the pressure sensor (7) and the analog to digital converter (12) there is connected an electronic subtractor (13) and an amplifier (14), by which means a preselectable part measuring range may be expanded over the whole conversion range of the analog to digital converter (12).

8. An arrangement according to one of claims 2 to 5, characterised in that the signal of the pressure sensor (7) is transmitted to the evaluation unit (16) via a digital serial interface (22).

9. An arrangement according to one of claims 2 to 5, characterised in that the pressure sensor (7) supplies a pressure dependent frequency signal (23) and a temperature dependent frequency signal (24) and that the frequency signals (23, 24) are digitalized via two frequency-digital transducers (25, 26) and the two digital signals are transmitted to the evaluation unit (16).

10. An arrangement according to one of claims 2 to 7, characterised in that the pressure sensor (7) is fastened to pile hammer (1) serving to pile-drive piles (2) into the water floor (5) and that the supply lines (3) of the pile hammer (1) also comprises the signal lead (15) of the pressure sensor (7).

11. An arrangement according to claim 10, characterised in that a computer provided for the monitoring and control of the pile hammer (1) also serves the acquisition, storage and evaluation of the readings of the pressure sensor (7).

12. An arrangement according to claim 11, characterised in that the computer also registers the number of pile drives and computes the energy sum used for this.

13. A method for determining the penetration depth when putting

in place supporting elements (2) into a water bed (5), using a pressure sensor (7) suitable for measuring water pressure and fastened underwater to a supporting element (2) or to a device connected to the supporting element (2), characterised by the subsequent method steps:

- before the beginning or during the putting in place of a supporting element, a first reading of the pressure sensor is taken and is kept as a reference value;
- after consuming a certain amount of energy for the putting in place of the supporting element (2) or after the completion of the time interval required for this, a further reading of the pressure sensor (7) is taken and retained,
- from the difference of the preceding and further readings, the penetration depth (10) achieved by the intermediate putting in place is calculated, preferably by multiplication of the difference by a suitable calibration factor;
- in the case that the desired penetration depth is not yet sufficient, the method steps are repeated from the second method step.

14. A method according to claim 13, characterised in that for improving the linearity and accuracy of the conversion function of pressure into distance, a tidal compensation and/or a gravitational acceleration compensation and/or a depth dependent density change of the water are taken into account.

15. A method according to claim 13 or 14, characterised in that during the measuring interval, further data is extracted and retained from the device (1) for putting in place the supporting element (2), particularly data for determining the required amount of energy for putting in place the supporting element (2).

16. A method according to one of claims 13 to 15, characterised in that for each retained reading, a point in time is also registered.

17. A method according to one of claims 13 to 16, characterised in that the penetration depths (10) calculated from the readings are represented on a diagram.

18. A method according to one of claims 13 to 17, characterised in that before the beginning of the determination of the penetration depth (10) the reading (11) of the pressure sensor (7) is reduced to almost zero by way of an electronic subtractor (13) and the residual value (17) is amplified by a predjustable multiplication factor (18) by way of an amplifier (14), wherein the size of the multiplication factor (18) is preselected such that the amplified residual value (19), with the maximum expected penetration depth (10), does not exceed the highest analog value which can be processed by a subsequently connected analog to digital converter (12).

19. A method according to claim 18, characterised in that the reduction of the reading of the pressure sensor (7) by way of the subtractor (13) is automatically effected before the beginning of the determination of the penetration depth (10).

20. A method according to one of claims 13 to 17, characterised in that the reading (11) of the pressure sensor (7) is digitalized by way of a highly accurate analog to digital converter (21) with a digital resolution of more than 12 bits.

21. A method according to one of claims 13 to 17, characterised in that the pressure sensor (7) is provided with a digital serial interface (22) which has a resolution of up to 0.005 ppm over a range of 3000 PSI.

22. A method according to one of claims 13 to 17, characterised in that the reading (11) of the pressure sensor (7) is transmitted by way of a first frequency signal (23) and the reading of a temperature sensor is transmitted by way of a second frequency signal (24).

23. The use of a pressure sensor (7) suitable for measuring water pressure for determining the penetration depth (10) from

the pressure differences arising when putting in place supporting elements (2) into a water bed (5), particularly by way of a method according to one of claims 13 to 22.

Abstract

An arrangement for determining the penetration depth on putting in place supporting elements into a water bed

With an arrangement for determining the penetration depth (10) when putting in place supporting elements (2) into a water bed (5), according to the invention, there is provided a pressure sensor (7) for measuring the water pressure which is fastenable to the supporting element (2) or to a device (1) connected to the supporting element (2). The readings (11) supplied by the pressure sensor (7) are transmitted via a signal lead (15) to an evaluation unit (16) which determines the penetration depth (10) of the supporting element (2) from the reading differences which occur during the sinking of the pressure sensor (7) on penetration of the supporting element (2) into the water bed (5).

COMBINED DECLARATION AND POWER OF ATTORNEY	ATTORNEY DOCKET NO.
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As a below-named inventor, I hereby declare that:

Reink POHLMANN

My residence, post office address and citizenship are as stated below next to my name,

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention.

AN ARRANGEMENT FOR DETERMINING THE PENETRATION DEPTH ON
PUTTING IN PLACE SUPPORTING ELEMENTS INTO A WATER BED

the specification of which:

(Check one) ☒ is attached hereto.

___ was filed on _____ as

Application Serial No. _____ and

was amended on _____
(if applicable)

was amended through _____
(if applicable)

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to the examination of this application in accordance with Title 37, Code of Federal Regulations, Section 1.56.

I hereby claim foreign priority benefits under Title 35, United States Code, Section § 119, of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed:

Prior Foreign Application(s):

Priority Claimed

<u>196 33 803.4</u>	<u>GERMANY</u>	<u>August 22, 1996</u>	<u>X</u>	<u> </u>
Priority Number	Country	Date filed (Priority Date)	Yes	No
<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>
Priority Number	Country	Date filed (Priority Date)	Yes	No
<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>
Priority Number	Country	Date filed (Priority Date)	Yes	No

I hereby claim the benefit under Title 35, United States Code, Section 120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, Section 112, I acknowledge the duty to disclose material information as defined in Title 35, Code of Federal Regulations, Section 1.56(a), which occurred between the filing date of the prior application and the national or PCT International filing date of this application:

_____ (Application Serial No.)	_____ (Filing Date)	_____ (Status - Patented, pending, abandoned)
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_____ (Application Serial No.)	_____ (Filing Date)	_____ (Status - Patented, pending, abandoned)
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_____ (Application Serial No.)	_____ (Filing Date)	_____ (Status - Patented, pending, abandoned)
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I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that those statements were made with the knowledge that wilful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such wilful false statements may jeopardize the validity of the application or any patent issued thereon.

The undersigned hereby authorizes **Michael J. Striker** and the firm of **Striker, Striker & Stenby**, to accept and follow instructions from:

DR. VONNEMANN & PARTNER

as to any action to be taken in the Patent and Trademark Office regarding this application without direct communication between Michael J. Striker, the firm of Striker, Striker & Stenby, and the undersigned. In the event of a change in the persons from whom instructions may be taken, Michael J. Striker and the firm of Striker, Striker & Stenby will be so notified by the undersigned.

I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith:

POWER OF ATTORNEY: Michael J. Striker, Registration No. 27233

Address all telephone calls to: Michael J. Striker

Telephone number: (212) 687 - 5068

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 U.S.A.

FULL NAME OF SOLE OR FIRST INVENTOR: Reink POHLMANN	INVENTOR'S SIGNATURE:	DATE:
RESIDENCE AND FULL POSTAL ADDRESS: Strand Allee 42, D-23669 Timmendorfer Strand GERMANY	CITIZENSHIP: German	

UNITED STATES PATENT AND TRADEMARK OFFICE

In re:

Applicant: Reink POHLMANN

Serial No.:

Filed:

For:

SIMULTANEOUS AMENDMENT

August 21, 1997

Hon. Commissioner of
Patents and Trademarks
Washington, D.C. 20231

Sir:

Simultaneously with filing of the above identified application,
please amend the application as follows:

In the specification:

Page 1, between lines 2 and 3, insert -- Background of the invention --,

between lines 27 and 28, insert -- Summary of the Invention --.

Page 7, between lines 25 and 26, insert -- Brief Description of the Drawings --.

Page 8, between lines 6 and 7, insert -- Description of Preferred Embodiments --.

In the claims:

Cancel all claims without prejudice.

Add the following claims:

24. An arrangement for determining a penetration depth when putting in place supporting elements into a waterbed, the arrangement comprising a pressure sensor provided for measuring a water pressure and

fastenable at least indirectly to a supporting element; means for transmitting readings supplied by said pressure sensor; and evaluating means for receiving the readings and determining reading differences which occur during a sinking of said pressure sensor on penetration of the supporting element into a waterbed.

25. An arrangement as defined in claim 24, wherein said pressure sensor is directly fastenable to a supporting element; and further comprising means for directly fastening said pressure sensor to the supporting element.

26. An arrangement as defined in claim 24; and further comprising a device connected to the supporting element, said pressure sensor being fastenable to said device; and means for fastening said pressure sensor to said device.

27. An arrangement as defined in claim 24; and further comprising means for converting said readings ^{into} ~~as~~ electrical signals; and means for transmitting the converted signals to said evaluating means and including an electrical signal lead.

28. An arrangement as defined in claim 24, wherein said

evaluating means include a computer which automatically acquires and stores the readings.

29. An arrangement as defined in claim 28, wherein said computer is formed so that it constantly computes and displays a penetration depth from the differences in the readings.

30. An arrangement as defined in claim 24, wherein said pressure sensor is formed so that it is suitable for measuring absolute pressure of substantially 200 bar and has a measuring accuracy of substantially 1 mbar.

31. An arrangement as defined in claim 24, wherein said pressure sensor is formed so that a signal of said pressure sensor consists of an analog electrical quantity; and further comprising an analog to digital convertor which converts the analog electrical quantity into a digital signal which is transmitted to said evaluating means.

32. An arrangement as defined in claim 31; and further comprising an electronic subtractor and an amplifier arranged between said pressure sensor and said analog to digital convertor so that a preselectable part measuring range is expandable over a whole conversion range of said

analog to digital convertor.

33. An arrangement as defined in claim 27; and further comprising a digital serial interface through which the signals of said pressure sensor is transmitted to said evaluating means.

35. An arrangement as defined in claim 27, wherein said pressure signal is formed so that it supplies a pressure dependent frequency signal and a temperature dependent frequency signal; and further comprising two frequency-digital transducers which digitalize said frequency signals and transmit two digital signals to said evaluating means.

36. An Arrangement as defined in claim 24, wherein the supporting element is a hammer serving to pile-drive piles into a water floor; and further comprising supply lines provided on the pile hammer and including said signal lead of said pressure sensor.

37. An arrangement as defined in claim 36, wherein said evaluating means include an computer which monitors and controls the pile hammer and also serves for an acquisition, storage and evaluation of the readings of said pressure sensor.

38. An arrangement as defined in claim 37, wherein said computer also registers a number of pile drives and computes an energy sum used for the pile drives.

39. A method of determining a penetration depth when putting in place supporting elements into a water bed, the method comprising the steps of measuring a water pressure by a pressure sensor which is fastened under water at least indirectly to a supporting element or to a device connected to the supporting element; before a beginning or during a putting in place of a supporting element, taking a first reading of the pressure sensor and keeping the first reading as a reference value; after consuming a certain amount of energy for the putting in place of the supporting element or after the completion of a time interval required for this, taking a further reading of the pressure sensor and retaining the further reading; from a difference of a preceding and further readings, calculating a penetration depth achieved by an intermediate putting in place; in case that a desired penetration depth is not yet sufficient, repeating the preceding method steps from the step of the taking and retaining the further reading of the pressure sensor.

40. A method as defined in claim 39, wherein said calculating includes calculating by a multiplication of a difference by a suitable calibration factor.

41. A method as defined in claim 39; and further comprising the step of taking into account a parameter selected from the group consisting of a tidal compensation, a gravitation acceleration compensation, a depth dependent density change of the water, and a combination thereof, for improving a linearity and accuracy of a conversion function of pressure into distance.

42. A method as defined in claim 39; and further comprising during a measuring interval, the steps of extracting and retaining further data from the device for putting in place the supporting element.

43. A method as defined in claim 42, wherein said extracting and retaining includes extracting and retaining from the device of data for determining a required amount of energy for putting in place the supporting element.

44. A method as defined in claim 39; and further comprising the steps of registering a point in time for each retained reading.

45. A method as defined in claim 39; and further comprising the steps of calculating from the readings a penetration depth and representing the penetration depth on a diagram.

46. An arrangement as defined in claim 40; and further comprising, before a beginning a determination of the penetration depth, the steps of reducing the reading of the pressure sensor to almost zero by an electronic subtractor and amplifying a residual value by preadjustable multiplication factor with an amplifier, so that a size of the multiplication factor is preselected such that an amplified residual value, with a maximum expected penetration depth, does not exceed a highest analog value which can be processed by a subsequently connected analog to digital convertor.

47. A method as defined in claim 46, wherein said reduction includes a reduction of the reading of the pressure sensor by the subtractor automatically before the beginning of the determination of the penetration depth.

48. A method as defined in claim 39; and further comprising the step of digitalizing a reading of the pressure sensor by an analog to digital convertor with a digital resolution of more than 12 bits.

49. A method as defined in claim 39; and further comprising the step of providing the pressure sensor with a digital serial interface which has a resolution of up to 0.005 ppm over a range of 3000 PSI.

50. A method as defined in claim 39; and further comprising the steps of transmitting a reading of the pressure sensor by a first frequency signal and a reading of a temperature sensor by a second frequency signal.

Please amend the abstract as follows:

With an arrangement for determining depth [(20)] when putting in place supporting elements [(2)] into a water bed [(5), according to the invention], there is provided a pressure sensor [(7)] for measuring the water pressure which is fastenable to the supporting element [(2)] or to a device [(1)] connected to the supporting element [(2)]. The reading [(11)] supplied by the pressure sensor [(7)] are transmitted via a signal lead [(15)] to an evaluation unit [(16)] which determines the penetration depth [(10)] of the supporting element [(2)] from the reading differences which occur during the sinking of the pressure sensor [(7)] on penetration the supporting element [(2)] into the water bed [(5)].

REMARKS

This Amendment is submitted preliminary to the issuance of an Office Action in the above identified application.

With the present Amendment, applicant has amended the specification to bring it compliance with the requirements of the U.S. Patent Practice.

The original claims have been canceled and replaced with a new set of claims including claims 24 and 39, the broadest apparatus and method claims as well as claims 25-38 which depend on claim 24 and claims 40-50 which depend on claim 39. The claims have been drafted in accordance with U.S. Patent Practice and in order to facilitate the examination.

Consideration and allowance of present application is most respectfully requested.

Should the Examiner require or consider it advisable that the specification, claims and/or drawings be further amended or corrected in formal respects in order to place this case in condition for final allowance,

then it is respectfully requested that such amendments or corrections be carried out by Examiner's Amendment, and the case be passed to issue. Any costs involved should be charged to the deposit account of the undersigned (No. 19-4675). Alternatively, should the Examiner feel that a personal discussion might be helpful in advancing this case to allowance, he is invited to telephone the undersigned (at 212-687-5068).

Respectfully submitted,

Michael J. Striker
Attorney for Applicants
Reg. No. 27233

UNITED STATES PATENT & TRADEMARK OFFICE

Examiner:

Group:

Applicant(s): POHLMANN, R.

Filed : Simultaneously

Serial No. :

For : AN ARRANGEMENT FOR DETERMINING THE
PENETRATION DEPTH ON PUTTING IN...

August 21, 1997

Hon. Commissioner of Patents
and Trademarks
Washington, D.C. 20231

Sir:

Applicant herewith claims Convention Priority of the foreign patent application referred to in the Declaration of the present application. In accordance with Rule 55, a certified copy of the foreign application is herewith submitted.

Respectfully,

Michael J. Striker
Attorney for Applicant(s)
Reg. No. 27233

UNITED STATES PATENT AND TRADEMARK OFFICE

Examiner:

Group:

Applicant(s) : POHLMANN, R.

Serial No. :

Filed : Simultaneously

For : AN ARRANGEMENT FOR DETERMINING THE
PENETRATION DEPTH ON PUTTING...

INFORMATION DISCLOSURE STATEMENT

August 21, 1997

Honorable Commissioner of Patents and Trademarks
Washington, D.C. 20231

S I R S:

- X In accordance with the Duty of Disclosure, Applicant(s) submit(s) herewith a copy of the Foreign Search Report and copies of the reference(s) indicated therein.
- X In the event that the Foreign Search Report is in a foreign language, a translation thereof is herewith submitted.
- X Attached hereto is a FORM PTO 1449 listing the references.
- Attached hereto is a copy of a reference cited in the specification of the application as filed. The specification itself recites the relevance of these documents.
- Applicant petitions for consideration of this Information Disclosure Statement since it is being submitted after receipt of an office action and submits herewith the required fee. If this fee is missing or insufficient, then authorization is given to debit the account of the undersigned: 19-4675.

page 2 of 2

— Attached hereto are copies of references cited which may be pertinent to this application. Since the references are in the English language, no statement of relevance is submitted.

— Attached hereto is a copy of the Office Action issued in the corresponding German application, together with a translation thereof and copies of the references cited therein. A list of the cited references is also attached.

— Attached hereto is a Statement of Relevancy and copies of references cited therein.

Respectfully submitted,

Michael J. Striker
Attorney for Applicant(s)
Reg. No. 27233

LIST OF PRIOR ART CITED BY APPLICANT <i>(Use several sheets if necessary)</i>	<small>FORM PTO-1449 REV. 7-79</small>	<small>U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE</small>	<small>ATTY. DOCKET NO.</small>	<small>SERIAL NO.</small>
	<small>APPLICANT</small> <div style="text-align:center">POHLMANN, R.</div>			
	<small>FILING DATE</small>		<small>GROUP</small>	

U.S. PATENT DOCUMENTS														
EXAMINER INITIAL		DOCUMENT NUMBER							DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE	
	AA													
	AB													
	AC													
	AD													
	AE													
	AF													
	AG													
	AH													
	AI													
	AJ													
	AK													

FOREIGN PATENT DOCUMENTS													
		DOCUMENT NUMBER					DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION		
											YES	NO	
	AL	DE3338135	A1	050985	GERMANY								
	AM												
	AN												
	AO												
	AP												

OTHER PRIOR ART (Including Author, Title, Date, Pertinent Pages, Etc.)									
	AR								
	AS								
	AT								

EXAMINER	DATE CONSIDERED
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* EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.